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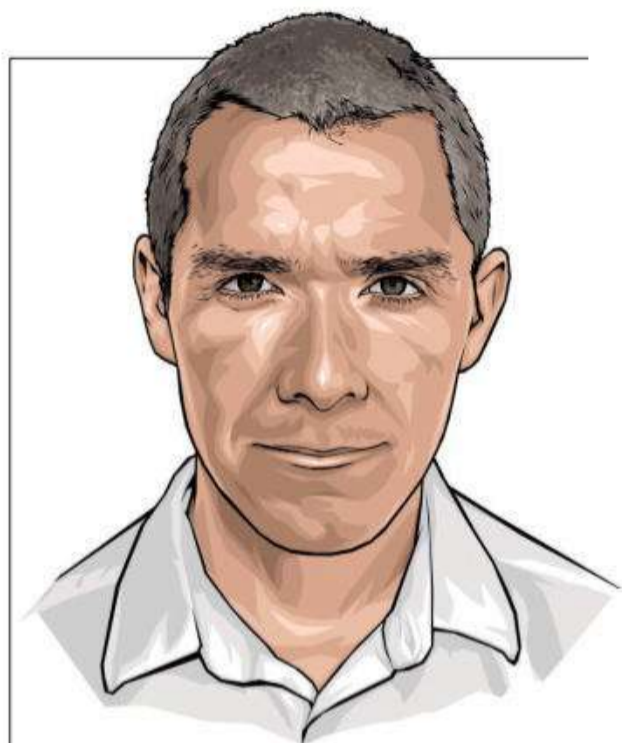


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Stuart
Codling
Editor



F1's unwelcome move to the front pages

Time was when politicians and other public figures touched by the merest whiff of scandal would make a principled resignation and shimmy out of the public eye for a while. That was then; this, indubitably, is now. Over the past couple of decades compromised politicians from Peter Mandelson to Boris Johnson have shamelessly clung on to the trappings of office – and even when they’ve been flushed down the pan, vexatiously and disobligingly they bob back to the surface.

I was moved to think along these lines when Formula 1 appeared as item three in the BBC’s *10 O’Clock News* at the beginning of the Saudi Arabian GP weekend. Not in its customary position after the stick-and-ball sports, nor even P3 in the sporting round-up, but sitting with DRS activated in the slipstream of US election ferment and the latest shenanigans in the open sewer that is UK domestic politics. The subject was not who had gone fastest in either of the practice sessions, but the latest developments in the ongoing Red Bull affair.

This whole tawdry and unedifying scene, in which a significant HR complaint has been opaquely investigated and dismissed, then weaponised in a maelstrom of power-grabbing and petty score-settling, does F1 no favours at all. A number of factors here are highly problematic, including the challenge for a monthly magazine of covering a constantly developing story which will no doubt take further twists between *GP Racing* going to press and arriving on the shelves.

There are important questions of perception to be addressed here. In any HR process surrounding an accusation of the kind which began this saga, there must be a presumption of innocence until the full facts are assessed. Equally, while personal matters should remain confidential, the complaint must be treated with due gravity and investigated seriously and impartially.

There have been many calls for transparency. That’s difficult, given the indistinct borders between transparency and prurient nosiness, but justice must be both done and *seen* to be done.

At the moment, when a female employee’s grievances have been dismissed, the employee herself suspended from her job, and the subject of the complaint is telling everyone to shut up about it and move on – this being the gist of the segment in the *10 O’Clock News* – the optics are spectacularly poor for a sporting category which is trying to attract more female fans, workers and participants. My wife, who has no interest in F1 beyond the fact that it keeps me gainfully employed, rolled her eyes and muttered, “Well, typical.”

The reliably acerbic *Guardian* columnist Marina Hyde described this saga as ‘Keeping Up With The Carkrashians’. She’s not wrong.

GP Racing has a podcast!
Search for ‘Flat Chat with Codders’ in your podcasting platform of choice

Contributors



OLEG KARPOV

Oleg spent time with Esteban Ocon for an exclusive peek into his training regime (p32) and joined Alpine’s winter Academy camp (p50)



ANDREW BENSON

Andrew takes a look at Lewis Hamilton’s 2025 switch to Ferrari and what both parties want and need from each other (p58)



ALEX KALINAUCKAS

Alex analyses what Daniel Ricciardo’s plan for the rest of his F1 career is (p68). Stay at RB or push for the second Red Bull seat?



TIM WRIGHT

After 50 years in motorsport, the former March, Fittipaldi and McLaren man talks us through the changes he’s seen in F1 (p76)

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NEXT ISSUE ON SALE: APRIL 18

Circulation queries Seymour Distribution Ltd, 2 East Poultry Avenue, London EC1A 9PT. Tel: +44 (0)20 7429 4000. Fax: +44(0)20 7429 4001. Email: info@seymour.co.uk. ISSN 2633-8157 (print) ISSN 2633-8165 (online). EAN 07713614480012. Printed by William Gibbons & Sons Ltd, 28 Planetary Road, Willenhall, Wolverhampton WV13 3XT. © 2024 Motorsport Network Media UK Ltd.

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Subscriptions GP Racing subscriptions, Motorsport Network Media UK Ltd, 3 Queensbridge, Northampton, NN4 7BF, UK. Email: help@asm.secureorder.co.uk. Tel: 0344 848 8826. Overseas Tel +44 (0)1604 251 454. *GP Racing*, ISSN 2633-8157 (USPS 25186) is published monthly by Motorsport Network Media UK Ltd, The Power House, 1 Linkfield Road, Isleworth, TW9 6QC, UK. The US annual subscription price is US\$68.37. Airfreight and mailing in the USA by agent named WN Shipping USA, 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals postage paid at Brooklyn, NY 11256. US Postmaster: Send address changes to GP Racing, WN Shipping USA, 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Subscription records are maintained at Motorsport Network Media UK Ltd, The Power House, 1 Linkfield Road, Isleworth, TW9 6QC, UK. Air Business Ltd is acting as our mailing agent.

Thanks to Michel Berthelemot, Anne Bradshaw, Jess Borrell, Will Hings, Cameron Kelleher, Roman De Lauw, James Lloyd, Bradley Lord, Adam McDaid, Stuart Morrison, Will Ponissi, Cait Rust, Kevin Tee



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Life is a roller coaster

At night, under the lights, the Jeddah Corniche circuit can sometimes seem like a pretty surreal environment. I had in mind a shot that would evoke some of the qualities of a roller coaster ride with the car almost seeming to be on the rails.

It was a tricky one to execute because the 'window' in the fence for photographers to shoot through – one of very few anyway on this track – had been covered over this year. So I shot through the fence and made the wires 'disappear' via a low shutter speed. The hard part then is getting the car (and ideally the driver's helmet) pin sharp. Happily this one of the race winner was one such.



Photographer
Zak Mauger

Where Jeddah, Saudi Arabia

When 7:20pm, Thursday
7 March 2024

Details Canon EOS R3
24-70mm lens, 1/13th @ F4.5



Sargeant gets struck off

The low-riding modern generation of ground-effect cars throw up lots of sparks as the skid plates hit the ground, which always looks spectacular in night races. The sparking is often more intense when cars go off the racing line to overtake. What you don't really see on TV is how much the surface suffers as the cars repeatedly strike it.

I shot the start of the race on the inside of the main straight and tried to catch overtakes using a slow shutter speed, which really shows off the trajectory and intensity of the sparks. I quite like how the sparks are the main feature of this image of Logan Sargeant being overtaken (maybe he will as well).



Photographer
Zak Mauger

Where Sakhir, Bahrain

When 7:05pm, Saturday
2 March 2024

Details Canon EOS R3
70-200mm lens, 1/8th @ F8

The usual suspects

Much has been made of this being the first year in world championship history that every driver on the grid is racing for the same teams with which they finished the previous season. Perhaps the peculiar spacing of the drivers here was an attempt to offer some differentiation in what is a standard image.

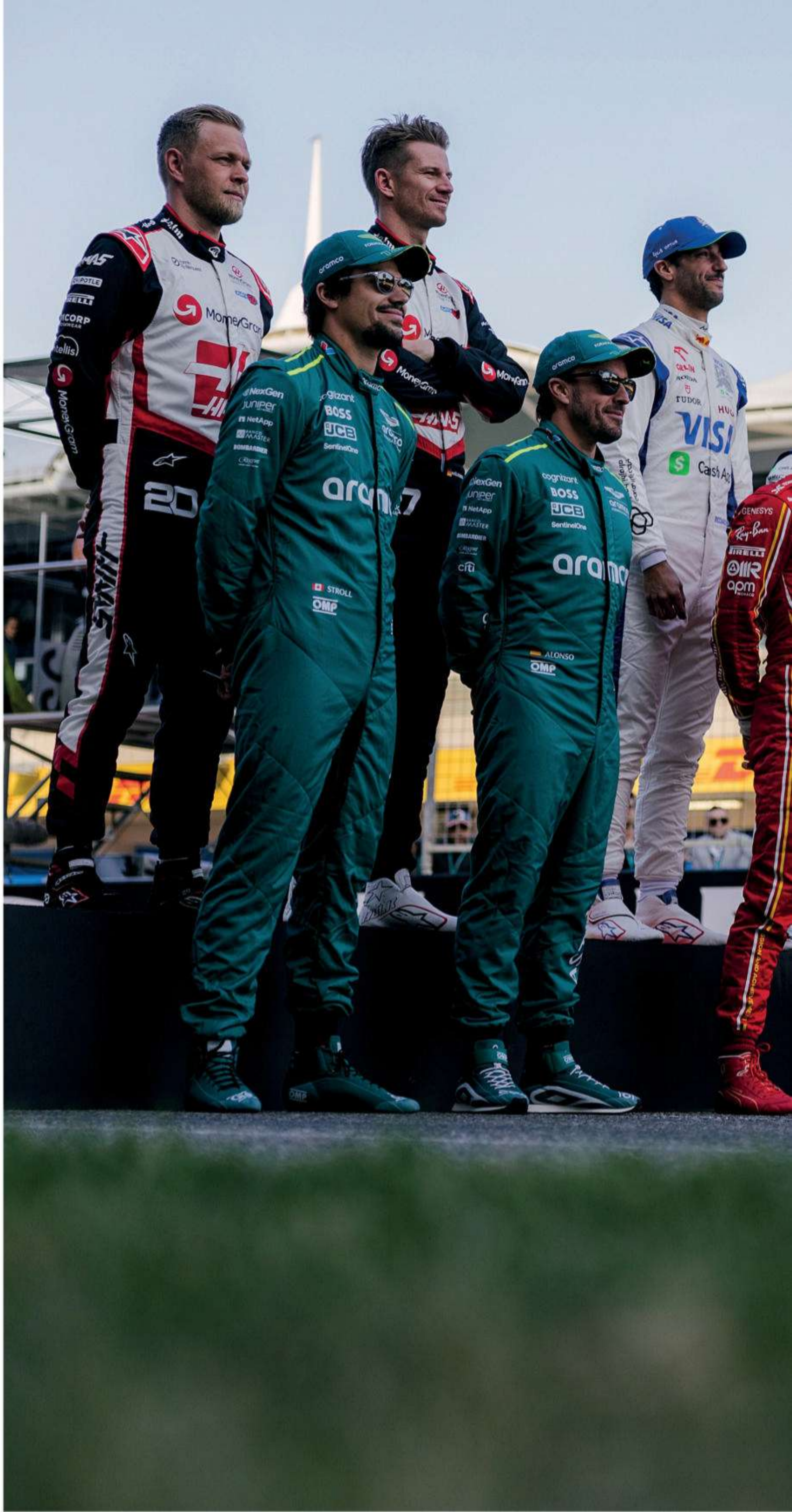
Having checked out the unnecessarily spaced-out arrangement I went for a side-on angle which would disguise it a bit. Since I'm shooting on behalf of Aston Martin once again this year, I chose the side with Lance and Fernando nearest. Placing the camera on the ground put some grass in the foreground, adding depth to the shot.



Photographer
Zak Mauger

Where Sakhir, Bahrain
When 5:01pm, Saturday
2 March 2024

Details Canon EOS R3
24-70mm lens, 1/1250th @ F2.8





No lost horizon in the Shangri-La

My schedule for race day was to shoot the start at Turn 1 and then at some point make my way up to the 59th floor of the Shangri-La hotel on the Jeddah Corniche. Lance Stroll's unexpected interface with the barrier meant the majority of pitstops came earlier than expected, giving me plenty of time to get there after covering the stops.

At 64 storeys the Shangri-La is the tallest building in Jeddah but there's no need to go all the way to the top for an excellent view. I'd been here during practice – the race organisers have a room set aside – but the main point of returning on race day was to capture the spectacular firework display.



Photographer

Andy Hone

Where Jeddah, Saudi Arabia

When 9:45pm, Saturday
9 March 2024

Details Canon EOS-1D MkIII
24mm lens, 1/50th @ F5







OLIVER BEA

ليف برمان

38

ANTONIO
SIVISTO

RICHARD MILLE



There's a lot of opportunities

One of the most interesting stories of the weekend (ongoing Red Bull shenanigans aside) was Oliver Bearman getting a late call-up to replace Carlos Sainz.

In similar but far less newsworthy circumstances, I made my F1 photographic debut at the 2013 Belgian GP when Charles 'Tootall' Coates was struck down by appendicitis.

Initially with this shot, I was in the pitlane before qualifying when I saw the sign above Sainz's garage being replaced and thought it would make a good 'newsy' image. Then I saw the two mechanics watching, with that typically expressive Italian body language, making it much more interesting!



Photographer
Sam Bloxham

Where Jeddah, Saudi Arabia

When 4:15pm, Friday
8 March 2024

Details Canon EOS R3
24-70mm lens, 1/320th @ F2.8

AN UNCIVIL WAR BREAKS OUT FOR RED BULL'S REINS

01

The start of the new F1 season has clearly shown that the winter wasn't enough for Red Bull's rivals to catch up and establish a challenge to the dominant force. The team itself, however, seems to be doing everything possible to destroy itself from within. Over first few months of the new year a scarcely credible civil war has unfolded within the camp.

There is every reason to believe the spark that eventually ignited the flames came back in December, when a grievance filed by one of Red Bull Racing's female employees against her boss, Christian Horner, reached the human resources department at the energy drink manufacturer's headquarters in Austria. In early February the details of the dispute, which at the time appeared to be internal, emerged. One of the largest Dutch newspapers, *De Telegraaf*, reported the fact of an investigation, backed up by confirmation from Red Bull GmbH. The article described the allegations against Horner as those of inappropriate conduct.

Shortly after the launch of the RB20, it was again *De Telegraaf* – whose journalist Erik van Haren is known in the paddock for his close ties to Max Verstappen – which reported sexual misconduct may have been the basis of the complaint.

Red Bull Racing hired an independent barrister to conduct an internal investigation, which was completed before the start of the season. In the meantime, Horner attended pre-season testing and was part of an official F1 press conference. Throughout the investigation, he consistently denied any wrongdoing.

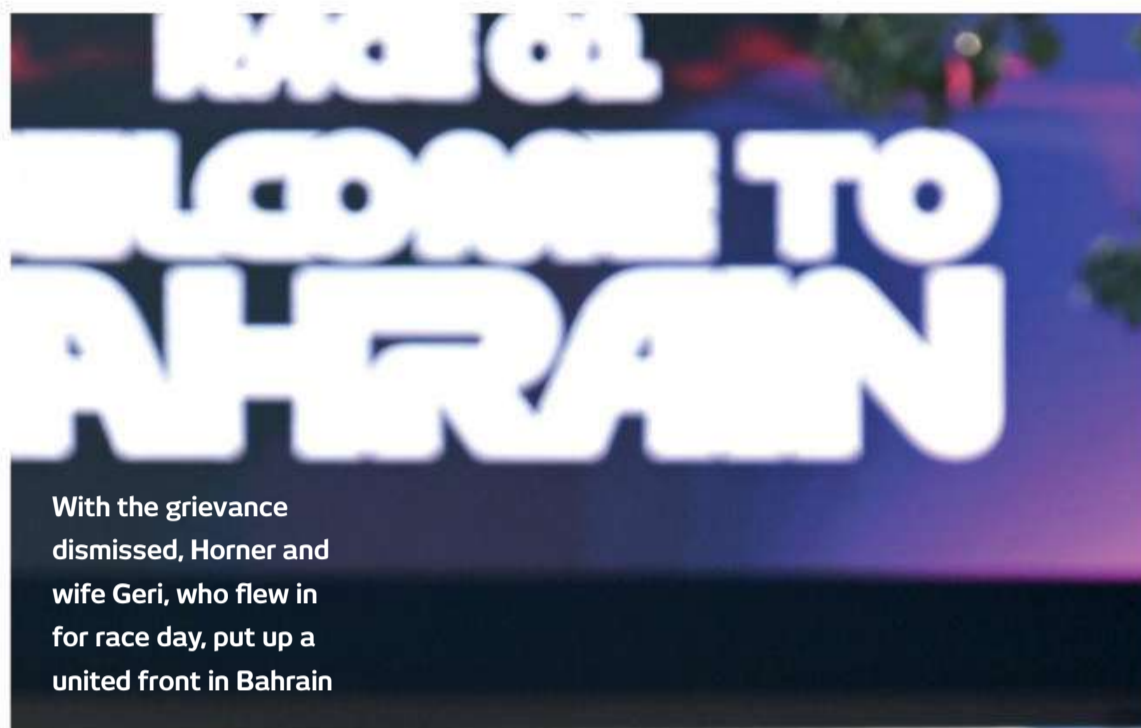
THE PATTERN OF LEAKS AND BRIEFINGS SUGGESTED A WAR FOR CONTROL OF THE TEAM ITSELF

alleged evidence in the form of screenshots and photographs.

It was by now clear the issue went beyond an HR grievance procedure. The pattern of leaks and briefings suggested a war for control of the team itself was playing out in which certain forces were seeking to limit Horner's influence or remove him.

Horner withstood the attack and appeared in the paddock

On the eve of the season opener in Bahrain, Red Bull announced that the grievance had been dismissed. But that wasn't the end of it. The following day accredited journalists as well as team principals and chiefs of the FIA and FOM, received anonymous emails containing



With the grievance dismissed, Horner and wife Geri, who flew in for race day, put up a united front in Bahrain



PICTURES: ZAK MAIGER; MARK SUTTON

on race day, accompanied by his wife Geri. But if the intention of this was to convey a sense of business as usual, it didn't last long despite the team's victory. Two newspapers carried quotes from Max Verstappen's father Jos, making it clear that if there were indeed two camps within the team – those for and against Horner – Jos was very much not in the former. "The team is in danger of being torn apart," he warned. "It can't go on the way it is. It will explode. He [Horner] is playing the victim, when he is the one causing the problems."

While it had been assumed that Verstappen was the source of the leaks, since a Dutch newspaper first broke the story, Jos denied this unequivocally. Dr Helmut Marko, the company's racing advisor and very much the eyes and ears on the factory floor of the late Red Bull magnate Dietrich Mateschitz, was next to fall under suspicion. Indeed, speaking to German TV before qualifying in Saudi Arabia, Marko hinted that he was potentially facing suspension from the team.

Support for Horner in Bahrain was also shown by the appearance of majority shareholder in the Red Bull drinks empire, Chalerm Yoovidhya

Max has made it clear that if Helmut Marko is forced out of the team then he would be likely to follow him out of the exit door



"My loyalty to him is very big," stressed Max, "and also I have always expressed this to everyone within the team, everyone high up, that he is an important part in my decision making for all the time in the future as well within the team."



This provoked an unequivocal reaction from Max, who had previously stuck to relatively neutral comments on the situation. Now the world champion was expressing his wholehearted support for Marko, making it clear that were Marko to leave, he would likely follow.

Jos Verstappen with Christian Horner in Bahrain. Max's father is not thought to be a big fan of Horner

Given the reports swirling of a meeting in Bahrain between Jos, Max's manager Raymond Vermeulen, and Mercedes team principal Toto Wolff, this seemed like a very real threat.

The following day, after meeting Red Bull GmbH bigwigs Oliver Mintzlaff and Franz Watzlawick, Marko claimed suspension was now off the table, saying the rumours "had no legal background" and adding: "I will continue here. I have three years left on my contract. But calm must return."

While it's clear Marko enjoys the support of the Austrian end of the business, the BBC has reported that Thai majority shareholder Chalerm Yoovidhya is very much on Horner's side – to the extent of meeting Vermeulen between the Bahrain and Saudi rounds to inform him that Horner is staying, whatever Team Verstappen chooses to do next.

The question, then, is whether this is a battle between factions within the team which has escalated to involve the shareholders – or whether the real fight is for control of the whole company post-Mateschitz.

Further developments were expected imminently as this issue of *GP Racing* closed for press. ►



ALPINE LOOKS TO THE POWER OF THREE

02 Amid ongoing bouts of reshuffles and redundancies, Team Enstone is once again starting from scratch – now, it seems, from its lowest point in a decade. It ended the first two rounds bottom of the championship standings and clearly has the least competitive car on the grid.

Since buying the team at the end of 2015, Renault has changed course three times. The original plan to return to the top level in five years' time was abandoned in 2021 and the man who articulated that plan, Cyril Abiteboul, ousted. The project, now under the Alpine banner, was taken over by Laurent Rossi, who appointed Otmar Szafnauer as team principal. Szafnauer was responsible for executing a new plan in which the team would return to the front 100 races after the start of the journey.

Although there was some ambiguity as to what exactly counted as said 'start', ultimately this proved inconsequential. Last summer there were more changes: Rossi and Szafnauer were out, as was sporting director Alan Permane, who had been at Enstone for 35 years.

Bruno Famin, who replaced Szafnauer (initially on an interim basis), stated last summer that the upper management wasn't happy with Otmar's vision and understanding of the timeline. But the trajectory has been anything but upward since his dismissal.

A new wave of resignations came at the start of the new year. Before the first race in Bahrain, reports emerged that both technical director Matt Harman and head of aerodynamics Dirk de Beer were leaving Enstone. In fact, even if both had decided to leave of their own accord, the

Alpine's two cars were the slowest in Bahrain (above) and team principal Bruno Famin (below) has restructured the team yet again



performance of the 2024 Alpine car could have prompted heads to roll in the technical department anyway.

Now Famin is attempting to create a structure at Enstone similar to the one Andrea Stella has built at McLaren. At Woking, the position of technical director was abolished at the start of last year, with responsibilities shared between three technical experts: Peter Prodromou (aerodynamics), David Sanchez (car concept and performance) and Neil Houldey (engineering and design).

Alpine's new structure is led by a triumvirate of technical directors: Joe Burnell is responsible for engineering, David Wheeler for aerodynamics and Ciaran Pilbeam for performance. All three report to Famin.

It was also announced that Bob Bell has left his role as an advisor, having agreed to join Aston Martin instead.

Famin insists the team will continue to grow – and the fact Alpine can't boast of recruiting big-name engineers to replace those who have left doesn't seem to bother him.

"We will have more people coming soon," he told *GP Racing's* sister publication *Autosport*. "Not big, big names, but very interesting profiles. It's good to have a controlled turnover in our staff, and to reinforce the structure we have with the talented people we have.

"It's good to be able to attract big names, but we know it takes a lot of time to add them with gardening leave. We do not exclude anything, but for the time being we're happy with the people we have, the idea of developing the potential of our own people, and to develop creativity, reinforced by newcomers in strategic positions." ►

NEWS IN BRIEF... NEWS IN BRIEF...NEWS IN BRIEF...

CIRCUITS



THE LATEST PLANS for the Speed Park Track in Qiddiya City, which will host the Saudi Arabian GP when completed, have been revealed with some ground-breaking concepts. The 'Blade' (right) is the proposed first corner.

ROAD CARS

Gerhard Berger's Ferrari 512LM, stolen at the San Marino GP in 1995, has been found by the Metropolitan Police in London. It is believed the car, worth around £350,000, was initially shipped to Japan before turning up in the UK late last year.

OFFICIATING

Two whistleblower claims that its president Mohammed Ben Sulayem, has interfered in championship officiating are being investigated by the FIA. One alleges that he attempted to get Fernando Alonso's penalty in last year's Saudi Arabian GP

overturned. The second relates to the homologation of the Las Vegas circuit.

2008

Felipe Massa has now filed a lawsuit in the London High Court against the FIA, FOM and Bernie Ecclestone over the outcome of the 2008 world championship.

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AUDI FIRES UP NOW

03 After months of speculation, Audi has made a move which can only be interpreted as confirmation of a full commitment to its Formula 1 programme.

While it was initially understood that Audi would only buy a majority stake in the Hinwil-based outfit, with former owner Finn Rausing retaining a minority stake, the company has now officially announced it “plans” to buy 100 per cent of the shares – a year and a half after the launch of the programme was announced. The deal has been agreed by all parties and is expected to be finalised in the near future.

One of Audi’s top managers, Oliver Hoffmann, has been appointed to lead the project. At the same time, it was announced that Andreas Seidl, who joined Sauber from McLaren just over a year ago, will become CEO of the team.

The move can be seen as an attempt by Audi bosses to remove the uncertainty surrounding the project in the F1 paddock. For much of last year it was widely speculated in the media that Audi’s management had developed cold feet about entering F1, particularly in the wake of the CEO change in which Gernot Doellner replaced Markus Duesmann, who was said to be a major supporter of the expensive project.

Insiders claim that at this point the opponents of the F1 programme within Audi tried to use the situation to trigger a U-turn before any major investment had actually been fulfilled – and divert funds to other projects. The silence of Doellner – who, in line with Audi’s corporate standards, refrained from making any official comment in the three months after taking up his post – became fertile ground for further speculation. Sauber management’s attempts to refute it were only partially successful. It would be logical to assume this did little to help its recruitment campaign.

It’s understood that the latest move, designed to demonstrate management’s determination in deeds as well as words, will allow the team to operate with a larger budget. This will allow Seidl to work on infrastructure development.

At the same time, it sends a clear message to those whom the German manager sees as potential future employees of the new Audi team, including drivers. It’s understood Seidl’s main target is Carlos Sainz, with whom he worked at McLaren and who is still without a contract for 2025. Audi’s commitment could become Seidl’s main selling point in negotiations with Sainz.

Sauber is expected to continue expanding its workforce over the next two years, growing from just over 600 employees in Hinwil to around 800 by the start of 2026.



Audi has reaffirmed its commitment to F1 (below). CEO Andreas Seidl is known to be keen on signing Carlos Sainz after their time together at McLaren



IT SENDS A CLEAR MESSAGE TO THOSE WHOM THE GERMAN MANAGER SEES AS POTENTIAL FUTURE EMPLOYEES

F1 MASTERMIND

Your chosen specialised subject: the world’s greatest motorsport

- Q1** Charles Leclerc’s fastest lap in Saudi Arabia was his first since which race in 2022?
- Q2** What is the highest position Zhou Guanyu has run in a GP and at which race was it?
- Q3** Including Oliver Bearman, how many drivers have scored points on debut this century: 9, 13 or 18?
- Q4** In Bahrain Max Verstappen claimed his fifth grand chelem – pole, lead every lap and fastest lap – but at which race did he manage his first?
- Q5** True or false: all of the eight GPs held at Long Beach were won by different drivers?
- Q6** Who am I? I started 100 GPs from 1958 to 1970 for Cooper, McLaren, Anglo American Racers and McLaren again, winning four times.
- Q7** Which circuit hosted its third world championship GP 30 years after its second?
- Q8** Prior to the 2024 Saudi Arabian GP, when was the last time four British drivers started an F1 race, and who were the four drivers?
- Q9** Three drivers have finished higher than their grid position in the first two 2024 GPs. Who are they?
- Q10** Which team has been victorious in more Bahrain GPs: Mercedes or Ferrari?



1 Australia 2 Second for three laps of the 2023 Dutch GP 3 18 4 Lewis Hamilton, Jensen Button, Paul di Resta, Max Chilton 5 Kevin Magnussen, Esteban Ocon, Zhou Guanyu 10 Ferrari (7 to 6)



RENAISSANCE OF AN ICON

Not surprisingly, Renault's timeless and streamlined looks were quickly adopted by the motor racing elite of the 1960's. Both Jim Clark and Sir John Whitmore favoured the wind-cheating, wrap-around style of Renault.

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A DESIGN FOR LIFE? NOT ANY MORE...

While we absorb the revised car liveries (or, rather, colour splashed on naked carbonfibre) now the season is under way, there's also the fun of seeing different helmet designs. Individual paint schemes have always mattered, particularly when identifying which driver is which within a team.

Nowadays a driver's choice of artwork is sometimes seen as less distinctive and much more changeable than it used to be.

That is confirmed by Mike Fairholme, a helmet artist at one time responsible for 12 F1 drivers in the 1990s. Having trained as a graphic designer, he has seen a major shift in design and technique.

"The process of painting a helmet is different today," Mike says. "It's a form of art, not a graphic. In a way it's a fashion evolution; what I did related to a heraldic style where a knight wearing a helmet had a shield with a coat of arms to identify him. For me a graphic idea sends a message without words. That was part of my inherent understanding of how to present and create something noticeable."

Mike's career began as crash helmets attained greater visibility; one year after they became mandatory for motorbike riders in 1973, Mike



Mike Fairholme with helmet designs he created for Mika Häkkinen and David Coulthard

started riding himself and it felt natural to paint his own helmet and make it personal.

His final art college show was inspired by a friend who offered him a helmet on condition that he painted it for the display. "I kind of freaked the tutors out," he laughs, "because the graphics world in those days was all about two-dimensional images and illustrations, but here was me with a 3D object with elaborate paintwork on."

By the mid-1980s Fairholme was operating as a race helmet specialist and, while drivers would often have a concept, it was up to Mike to transfer the design into a visual message that would work at speed and distance. "I was always mindful of the appropriateness of colour," he recalls. "The designs from my era tended to be two or three colour designs and with that you can use the contrast."

David Coulthard had carried Scotland's national flag, the Saltire, on his crash helmets since his karting days but, as he moved to F1, the designs needed sophisticated yet clear adjustments.

"David's helmet evolved when he was at Williams because he had to get the Rothmans badge on, so the position of the Saltire had to move back. Later, to suit McLaren's sponsors, the blue was changed and a hoop added, with a final evolution when he moved to Red Bull."

From the team's arrival in 2005, Red Bull was keen to promote the brand in every possible way but there was caution in asking established racer Coulthard to alter his helmet design. In fact, he was happy to allow his specialist to adjust accordingly. Mike removed the halo, tweaked the colours from flat blue to metallic blue and introduced the Red Bull logo. It was the beginning of a system at Red Bull where drivers incorporate the brand into their racing identity.

"It wasn't a major shift," says Mike, "but it accommodated sponsors. It made it look a different helmet yet still related to DC with the Saltire; they let me get on with it and I feel lucky I was trusted."

Red Bull has allowed a softening of requirements on drivers' helmets with freedom of background colours and a diluted boldness of design. Another shift came from DC's replacement at the team; Sebastian Vettel's desire for constant changes, working with helmet specialist Jens Munser, led to 96 different designs in total – but Seb

wasn't the first driver to open up the creativity.

Much of that initiative came from the late Dan Wheldon, the British IndyCar ace who worked with Suffolk-based specialist Jason Fowler to adjust his logos constantly. The two of them started working together in 2003 and Dan decided to go for a new design with every fresh helmet, so long as his 'Lionheart Knight' emblem and the sponsors were included.

"I think Dan's helmets were the first to push the boundaries and play with new ideas," Jason says. "Drivers used the same design almost throughout their careers, so for a driver to change it every race was unheard of. I've no idea if those helmets inspired Seb to change his designs for races but I'd like to think so, as Dan's were there first!"

Constant alterations in F1 were banned in 2015 but that rule was relaxed in 2020. Mike, who began his career at a time when crafted helmets often had to last many races, believes a distinct design for a driver still matters.

"On the current grid, Kevin Magnussen's helmet is the most striking because of the large K sending a clear message it's Kevin. Of the others, it's notable Lando Norris's design features a recurring bold stripe, like the one often hidden on Vettel's design. This usually works, whatever background colour is used."

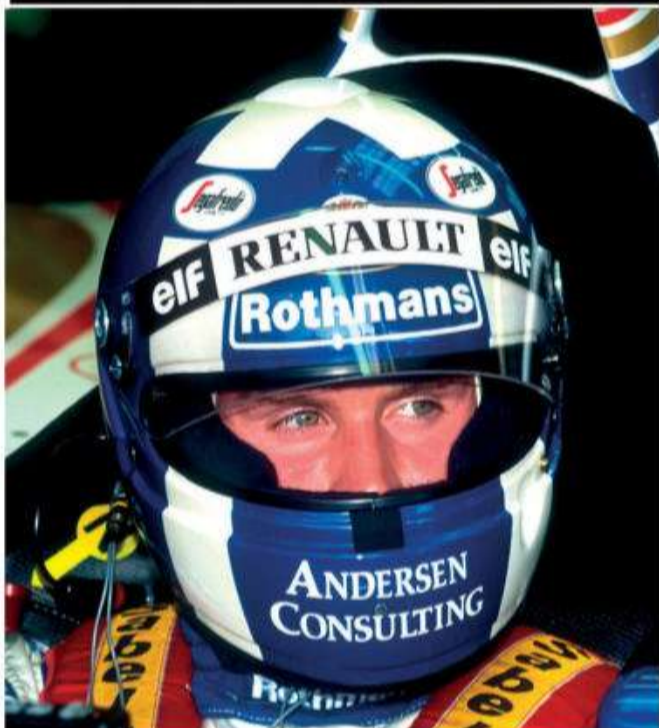
Perhaps some drivers are more savvy of their brand than others; Lando has his own gaming-and-clothing company, Quadrant. Each to their own in the world of helmet liveries, an artistic and colourful element of F1.



Jens Munser, best known for working with Sebastian Vettel, also produced this interesting design for Adrian Sutil in 2014



At the start of his career, pretty much until he made it to F1, David Coulthard's helmets were adorned just with the Scottish flag, the Saltire



When Coulthard made it F1 with Williams sponsors now had to be accommodated



At McLaren the band containing the West logo had to be catered for on Coulthard's helmet



And at Coulthard's final team in F1 the Red Bull obviously had to be reasonably prominent



Dan Wheldon was one of the first drivers, if not the first, to change designs regularly



Kevin Magnussen's designs always incorporate a big K, just in case you didn't know it was him...



Munser and Vettel collaborated on an amazing 96 different designs during Seb's F1 career



UNDER THE HOOD

PAT SYMONDS

PICTURES  **motorsport** IMAGES

Now the more air you can introduce in the first part of the cycle, the more fuel you can inject and the more energy is released. For any given engine speed this can be done by both smoothing the entry path for the air or pushing it in under pressure. In the early days of pressure charging this was done with a supercharger and some engines still use this method. A supercharger is an air compressor, in effect a big pump, which is driven mechanically by the engine.

Any compressor requires power to drive it and the amount of power required by a supercharger is considerable, around 60kW at full boost and high revs for an F1 engine. This power drain can be reduced by not relying on a mechanical drive but to use the exhaust

gases to drive the compressor. This is what is known as a turbocharger and consists of two main parts: the turbine which is spun up by the hot exhaust gases, and the compressor which is connected on the same shaft as the turbine and takes in cool air and compresses it to a high pressure before it's fed into the cylinder.

The turbocharger helps improve engine efficiency since much of the power to drive the compressor comes from the exhaust gases spinning the turbine, and therefore using energy that would otherwise be wasted. Unfortunately, nothing comes for free as the law of conservation of energy states that energy in a closed system remains constant so an amount of energy must be taken from the exhaust. Some of this doesn't matter – for example the exhaust gas loses some heat as it expands through the turbine, but it also causes a back pressure into the engine which robs it of some power. Overall, though, it's a good way to pressure-charge an engine.

Mechanically a turbocharger is a design challenge. The exhaust gas is entering the turbine at over 1,000 degrees so the turbine wheel is made of a special steel called Inconel which is a material developed for jet engines. The turbocharger is also rotating at up to 150,000rpm, so the centrifugal forces on the wheel are immense and the bearings must cope with both this high speed and high temperature.

A Formula 1 turbo is slightly different to most turbochargers since the shaft that joins the turbine and compressor is also the rotor

FORCE-FED: HOW A TURBO WORKS

Turbocharged engines are now *de rigueur* as the industry adopts engine downsizing to increase efficiency. While they are thought of as a relatively new development, the first patent for such a device was granted in 1905. Although the idea was sound the materials available to engineers at the time weren't suitable for such arduous conditions, and while a Liberty aero engine was turbocharged in 1918, it wasn't until the 1950s that the first production turbo-diesel engine went into production. This was followed in 1962 by a pair of turbocharged petrol General Motors models (albeit running very low boost): the Chevrolet Corvair Monza and Oldsmobile F-85 Jetfire. Poor reliability led to them going out of production within two years.

In Formula 1 Renault introduced turbocharging in 1977 but reliability was still problematic – the car retired 19 times out of the 26 races it started between 1977 and 1979. So, with so many difficulties why was turbocharging pursued? The answer lies in two important aspects of engine design: power production and efficiency.

Firstly, a petrol engine operates under a cycle of operations known as the Otto four-stroke cycle



By 1987 most of the grid were powered by turbo engines. The Ford GBA V6 was one of the last to be developed for this era

(after combustion-engine pioneer Nicolaus August Otto). The first part of the cycle draws air into the cylinder as the piston moves down the bore. The second part compresses that air as the piston moves up, while the third action is where the work is produced as the fuel which has been injected is burned, causing a rapid increase in pressure which drives the piston back down the bore – and, via the connecting rod, turns the crankshaft. Finally, the piston travels back up the bore, expelling the exhaust gases ready for the cycle to start again.

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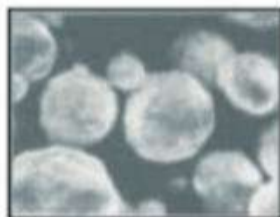
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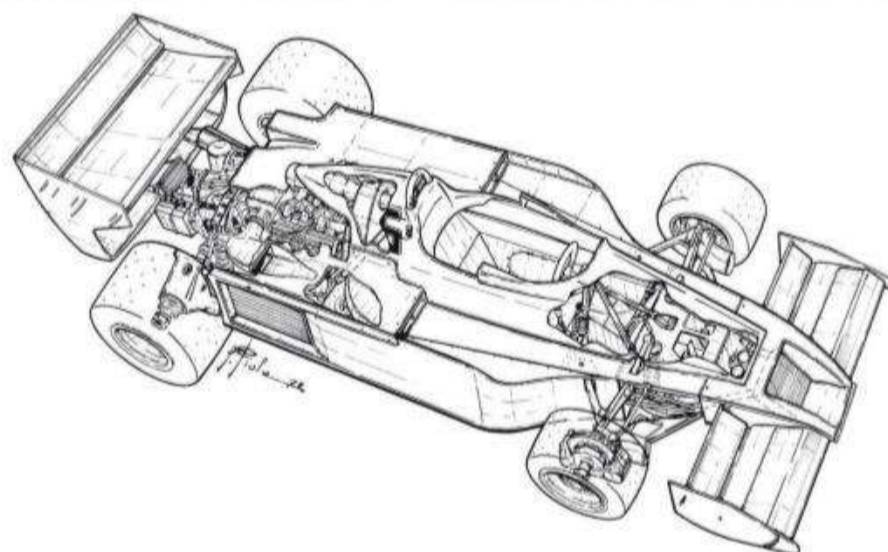
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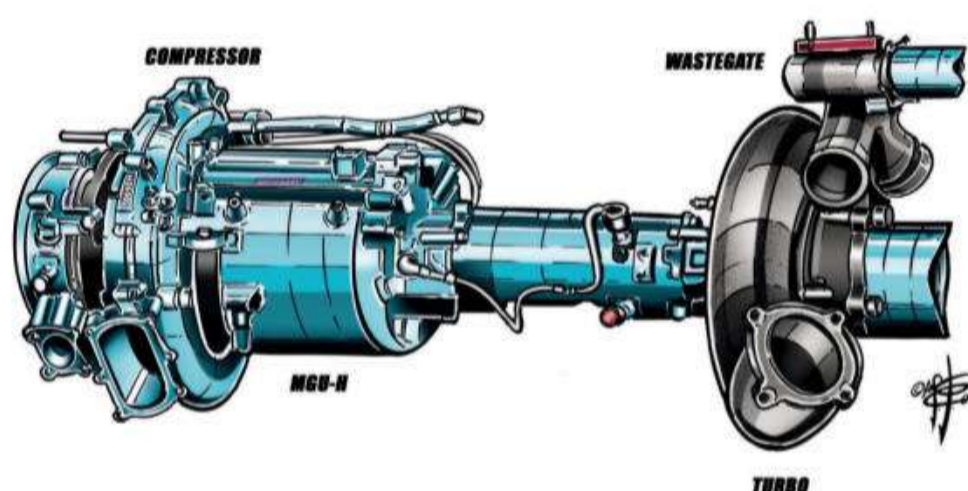
Renault mechanics work on the first turbocharged engine to appear in Formula 1, the 510bhp 90-degree V6 Renault-Gordini EF1



Turbocharged engines were banned for the 1989 season and only returned to Formula 1 for the V6 hybrid era at the start of 2014



The Renault turbocharged engine was fitted into the back of the RS01 in 1977. Unfortunately, both car and engine were unreliable



of an electric generator which sits between the two. This further increases efficiency by harvesting exhaust energy, turning it into electrical energy, which can be stored in the battery for later use.

A problem with turbocharging is that when the driver demands torque from the engine, the turbocharger may be spinning too slowly to produce the boost required. It takes time to come up to speed and this is known as turbo lag. Now the generator mentioned above can also act as a motor if voltage from the battery is applied to it. This unit, now acting as a motor, can spool the turbo up, thereby eliminating lag.

In fact, when generating electricity the system doesn't have to send it to the battery. The rules allow it to be sent straight to the other motor of the hybrid power unit which is connected directly to the crankshaft, thereby delivering power by a more direct route. Whichever route, it will take energy

out of the system and slow down, so the control systems get extremely complex with very high frequency switching to optimise energy recovery with the need for instant response.

The other thing you'll notice with a Formula 1 turbocharger is that the compressor is very large for such a small engine. One reason for this is that the engine requires a lot of air owing to its high rpm and the high boost pressure it runs.

THE OTHER THING YOU'LL NOTICE WITH A FORMULA 1 TURBOCHARGER IS THAT THE COMPRESSOR IS VERY LARGE FOR SUCH A SMALL ENGINE

More surprisingly, it's oversized because a Formula 1 engine runs slightly differently to a road engine. Firstly, it uses a modified Otto cycle called the Millar cycle and secondly it runs very lean, meaning its combustible mixture has a lot more air than normal. Both these factors require a large compressor.

As with many things in F1 the turbocharger isn't simple, but is highly developed.

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STRAIGHT TALK

MARK GALLAGHER

X @_markgallagher

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all about Charlotte Tilbury, well done, but for the rest of you it's worth reading on. For the deal between the F1 Academy and the Charlotte Tilbury cosmetics brand may be one of the more important sponsorship deals to have come motorsport's way in quite some time.

Let us be clear, a lack of sponsorship was one of the reasons W Series went to the wall. Despite worthy statements from many companies involved in F1 about support for gender diversity and inclusion, very few put their hands in their pockets when Catherine Bond Muir and her team came calling.

Charlotte Tilbury has changed all of that, and for those of us who believe that the benefits of sponsorship go far beyond the money, it's a potential game-changer.

The eponymous brand was founded by British make-up artist and beauty entrepreneur Charlotte Tilbury in 2012 and her business has become a global phenomenon. She initially built a strong following on YouTube thanks to her compelling make-up tutorials. They're fascinating to watch, so I unexpectedly find myself knowing the difference between foundation, concealer and a contour wand.

Launching her brand at London's Selfridges store in 2013, Tilbury's company

began to soar, with a flagship store opening in Covent Garden in 2015. In 2020 she sold a majority stake to Spanish fashion and fragrance company Puig, a deal which valued Charlotte Tilbury cosmetics at £1.3billion.

Described by British supermodel Kate Moss as "a force of nature", Tilbury is that rare beast in the world of business.

A woman who has founded, scaled and

runs a globally successful company, and she's determined to use her experience and strength as an entrepreneur to help other women. Hence the F1 Academy deal.

It's not F1's first deal with a cosmetics brand, of course, Yardley having backed BRM in 1971 and 1972 before switching to McLaren. There have been more since. This time things are very different: Tilbury is putting the weight of her business empire behind the Susie Wolff-operated F1 Academy at an important time in its development.

I will be surprised if we don't see other brands follow suit.

CHARLOTTE'S WEB OF INFLUENCE: F1 ACADEMY GETS A BOOST

While Formula 1's launch season tends to be awash with commentary about car concepts, masked innovations and garish liveries, some of us pore over the thing that fuels our sport. Money, and more precisely who has secured which sponsor and for how much.

Japanese industrial giant Komatsu turning up on the side of the Williams was one example, another the decision by Italian beer Peroni to shift allegiance from Aston Martin to Ferrari.

Stake with its Kick Saubers, and the Visa Cash App team, which once enjoyed more credibility when known as Minardi, grabbed the headlines. But there was so much more to unpick from across F1's commercial landscape.

Then a press release landed which announced that the F1 Academy had signed Charlotte Tilbury.



The Academy's inaugural champ Marta Garcia. The series has now teamed up with beauty brand Charlotte Tilbury

"Is she quick?" I wondered, turning to Google. Meanwhile the office WhatsApp group intervened.

"How amazing is this?" said Sophie.

"OMG," replied Debbie.

"Love her products," enthused Jill.

I apologise to our female readers for what comes next, as I have to admit I did the one thing someone of my age and gender does when faced with his own ignorance. I asked my wife who Charlotte Tilbury is.

If you're a guy reading this and you know

THIS MONTH

Fadi Naoum

Head of Development
for Sports &
Entertainment, SAP

Analytics and the science of marginal gains drives performance in a plethora of professional sports – including stick-and-ball pursuits as well as ones relying on wheels. SAP joined McLaren as a sponsor in 1997 and has now joined Mercedes – formerly a customer of its HANA software – as a partner with a mandate to help optimise resources, maximising development while remaining within the budget cap

CV

2005 – present

Head of Sports and
Entertainment, SAP

2001 – 2008

Platinum Consultant, SAP

1997 – 2000

Consultant, SAP US

1993 – 1996

Project Manager, SAP
Implementation, Colonia
Axa Insurance AG

1989 – 1993

Deputy SAP Project
Manager,
Lufthansa AG

GP Racing: What was your background before you joined SAP?

Fadi Naoum: I studied economic data processing at the University of Cologne, and then went directly from there to work for the German airline, Lufthansa. And that is where I came into contact with SAP, implementing their software.

GPR: SAP has been in Formula 1 since the 1990s as a sponsor, initially with McLaren. But like many tech companies the relationship has turned into something more than just a sticker on the car. So what's the difference between being a customer and a partner?

FN: Well, first I must emphasise that Mercedes is still our customer! We're proud to have Mercedes as a customer and now as a partner in Formula 1. We were also a partner with Mercedes in Formula E. We work together on innovation and it gives SAP an opportunity to develop in our laboratories, working hand-in-hand to meet customer requirements. Mercedes has also been a customer on the automotive side for a long time.

GPR: One of the key selling points with HANA [High-performance ANalytic Appliance] is speed, and Mercedes has talked about the power of that in engineering development. But it was also interesting to hear how it's become useful in policing budget-cap compliance?

FN: Yes, fundamentally it's a fast and powerful database where the data is stored in such a way that it can be queried, searched, analysed and served with great speed by users working collaboratively. A great advantage for engineering teams. Now that the budget cap has been implemented, there's much greater interest and focus on costs – not just on monitoring them in the present, but also in planning and forecasting. Some teams have already been hit [by penalties for breaches]. That's one of the benefits of our partnership with Mercedes, we're always ahead – we help the leaders stay on top of budgets in real time and forecast for the months to come.

INTERVIEW STUART COOLING

It's been a big change of mindset for Formula 1. Previously it was very engineering and performance-focused, now finance has to be integrated into the process so it works hand-in-hand to deliver the best parts, and the greatest performance, within the cap.

GPR: One team principal suggested, early on in the budget-cap implementation, that he would end up with more people in the finance department than in the engineering department. Does having access to faster and more powerful database software create the sort of efficiencies that means this won't happen?

FN: This is an important point because in modern F1 we're collecting a lot of data, so analysing it faster – identifying the information that's most important and relevant to the job in hand – is very powerful. Before, this information was collected in different areas, it was all spread out. You need to be able to bring it together so it can be analysed meaningfully. That helps with your predictions and forecasts, cuts down on overlaps and wasted time.

GPR: Is it fair to say that in the past, databases were merely repositories of information, whereas in the future they can become – to some extent – self-managing thanks to advances in machine-learning and artificial intelligence?

FN: Yes, it's important not just to collect data, but to have smart data. You can have all the data available, whole data centres full of information, but unless you have that sophistication of analysis then you're not going to take the full benefit from it. AI will certainly be a useful tool in this process.

GPR: Predictive analytics is a massive growth area, isn't it?

FN: This is also what we're doing with the budget cap. Predictive analytics gives you that view, say, in the middle of the season, of what happened before, where you are now, and what could happen in the coming months. It's a powerful way of tracking all the key performance indicators through the year.



A close-up photograph of a person's eyes, looking directly at the camera. The eyes are dark and intense, framed by thick, dark eyebrows. The background is a textured, grey metal grate with vertical bars, creating a sense of confinement or focus. The lighting is dramatic, with the eyes being the brightest part of the image.

EYES

ON THE

Quick? Yes. Uncompromising? You better believe it. When your family sold their house so you could go racing, you're not the kind of kid who gives up easily – especially when there's a Mercedes drive in the wind. That's why, when we visited Esteban Ocon in the off-season, we didn't find him lounging on the beach...

WORDS OLEG KARPOV
PICTURES MALCOLM GRIFFITHS

PRIZE



SITTING IN FRONT OF A MONITOR, ESTEBAN OCON STARES INTENTLY AHEAD. On screen is something video game-like, and Ocon is in the process of zapping enemy vessels while trying to protect his own starship in the middle of the screen. The catch is – he’s only using his eyes.

The monitor is tracking his pupils – and everything that catches his gaze explodes in an instant. And there’s a twist: while Ocon must destroy the white enemy objects, he mustn’t attack the red ones, since they’re ‘friendlies’ and he’ll incur a penalty if they don’t make it to the starship.

This isn’t a new shooter in the *Star Wars* gaming franchise, it’s a training aid developed by Xavier Feuillée, a performance coach the Frenchman has worked with since 2014, and it’s just one of tens of tools being used to hone Ocon’s reaction time and awareness.

“It helps you to detect things quicker,” Ocon tells *GP Racing*, getting out of the seat after coming close to setting his personal best score. “Like, if somebody spins in lap one, your reaction time is a lot quicker, and ultimately these moments can define your weekend. It’s all the little things that make a difference – and which you may not think about when you’re watching Formula 1 from the outside. But that’s the big hidden iceberg below.”

As we’re invited to swap in for Ocon as the starship’s ‘guardians’, he takes up the seat to the left – and, putting his arms on the table, it’s as if he falls asleep. But no, it’s just the next exercise – in which, with sensors gauging his heartbeat and other parameters, he needs to reach a maximum level of relaxation in the shortest possible period of time.

It’s a typical morning for Esteban – this time a bit warped by *GP Racing*’s presence – at the 321 Perform centre in Annecy, where we catch up with him ahead of the season. His daily routine usually begins with reaction and coordination training and other mental exercises. Then, after lunch, it’s time for the physical part.

Having worked in the Pyrenees until a couple of years ago, Feuillée relocated to the compact French town close to the Swiss border and opened a new base in a 14th-century castle in the area, just an hour’s drive away from Ocon’s residence. From mid-December until pre-season testing – with a small gap for Christmas with the family in Normandy – this is effectively the Alpine driver’s office, and one of the reasons he spends the winter in Europe rather than, say, the Maldives or Dubai. He also comes here after almost every grand prix for tests and recovery procedures.

“Yeah, I could go to Dubai or the Maldives, too,” he nods when it’s put to him that this is hardly the stereotypical image of an F1 driver’s off-season.

“You can find a gym almost everywhere but I’m not the type of guy who’d go for a long holiday somewhere far away. And there are no specific tools like these anywhere else.”

■ HOME IS WHERE THE ART IS

There is no shortage, after all, of travelling in Esteban’s life – and this dates all the way back to karting. It’s a well-known story, but no less astonishing because of that. With his parents, the dog and all the equipment required to service a go-kart, Ocon travelled across Europe in his early teens, 95,000km across three years. His family sold their house to fund Esteban’s racing career and literally lived on the road, travelling between racetracks in a van with an attached trailer.

So it makes sense that he’s not too keen to leave home now when he doesn’t have to.

“We changed two gearboxes during that time,” he smiles, recalling those ‘crazy’ years. And he isn’t talking about kart gearboxes. “I think we changed three sets of tyres on



Ocon on the training aid (top and above), using just his eyes to protect his ‘starship’. When Oleg takes over (below) Ocon relaxes to lower his heartrate



The 321 Perform centre in Annecy, where Ocon spends a lot of his time during the winter, on top of his trips after most grands prix





Watched over by Xavier Feuillée, whom Esteban has worked with since 2014, Ocon gets down to some more reaction work



the caravan – because we were carrying all the karting equipment with us, the wear was so bad...

“A funny story: we got stopped by the police once and they weighed the caravan and the van – and said, ‘We have a problem here. You are two and a half tonnes too heavy.’ They wanted to give us a huge fine, so we tried to explain that this is our life, this is what we’re trying to do. And they understood and let us go.

“That was, yeah... a bit on the extreme side. But my

dad was so sure I had something that there was no way it could go unnoticed.”

This family affair – Esteban racing, his dad acting as his mechanic, his mother taking care of pretty much everything else – could easily have come to nothing. Even though Ocon was picked up in karting by Gravity Management, run by eventual F1 team boss Eric Boullier and now-Mercedes F1 junior programme chief Gwen Lagrue, at the age of 18 his career nearly stalled when that company hit financial strife. ▶

Remarkably, this was immediately after the European Formula 3 season in which Esteban's rivals included Max Verstappen. While Max went straight into preparing for his F1 debut with Toro Rosso after finishing third in the standings, Ocon, who won the title, was gearing up to help his father with his work as a car mechanic in the small Normandy town of Evreux.

But at the same time he was haranguing Toto Wolff's phone line, trying to convince the Mercedes motorsport boss to save his racing career – and ultimately he succeeded.

"I don't remember for how long exactly I was calling and texting him," Esteban laughs. "Even if it was two weeks, it felt more like a month, because I had no other options. I was calling almost every day saying, 'If you don't take me now, it's finished.' And I was going to work with my dad in the garage. He found a solution in the end, with Fréd Vasseur, for me to race with ART in GP3. But it was very close."

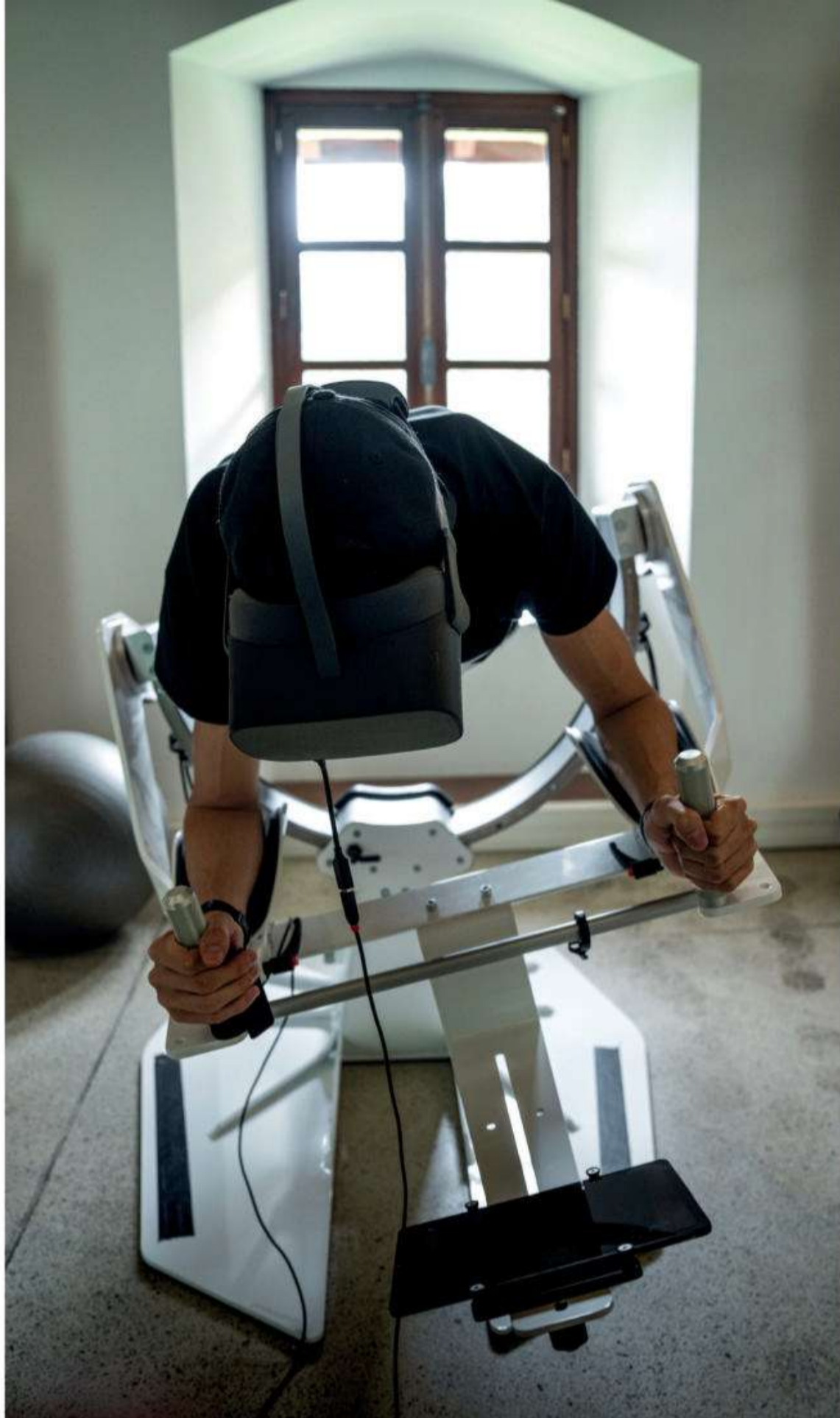
So if there happens to be a shortage of decent car mechanics in Evreux these days, that's on Toto and Fréd.

"I wouldn't be lost," says Esteban. "I used to work with my dad on cars together, and we still do. Of course, I prefer to drive the cars than to put my hands into them. But yes, I've got a good knowledge. My dad is probably the best mechanic I know. And I'm not saying that because I'm biased, that's the truth. I'm nowhere near as good, but I'm not too bad either."

■ THE OCON YOU DON'T SEE

He's a rare breed. Car mechanics' sons don't often make it to F4 and F3, let alone F1. And that's probably why Esteban is one of the most humble guys on the current grid. He's still got the smile of a 12-year old, he's friendly and polite, especially with the media. Watch his TV interviews – he'll try to find something positive to say even after the most difficult race.

But ask his team-mates, and they'll tell you that behind



closed doors you will find a very different Esteban – frank and blunt when he wants to get his point across. Rival teams’ sporting directors, when they’re summoned to the stewards over an incident involving Ocon, know he’ll make no concessions, brook no compromises if he thinks he’s in the right. Those who’ve had to deal with Esteban in situations like these can attest – his glare can pierce more than just those enemy vessels on Xavier Feuillée’s screen.

Presented with that viewpoint, as we move from one training machine to the other,

Ocon takes a couple of seconds to think but agrees: “Yeah, I think it’s a fair assessment. And that’s why maybe not everyone will like me, at first.

“But when there’s something that has to be said, especially in Formula 1, it has to be said. We have no time to waste here. So, it’s important to be straightforward. Maybe I’m too straightforward at times, but well... I’m not going to let anything go after I’ve worked so hard to get where I am. You see how many hours I put in every day here – and I don’t want to get eaten alive by anyone, be it some team manager, team principal, or a world champion.”

This is also probably a habit from those years when Esteban, as a teenager, had to deal with not just any but those specific adults who held his career in the palms of their hands.

“I had the weight of my family on my shoulders from a very young age,” he continues. “And I’m not saying it to seek pity: it was worth trying and we succeeded to end up where we wanted to be – and now everything is good. But it’s clear that I had to deal with these sorts of pressures, I had to be tough when it mattered, and I had to be heard when people weren’t necessarily listening, or weren’t convinced. And, you know, to make these businessmen, investors listen to you, when you’re 13 or 14, and really pay attention, isn’t easy.”

You may recognise the uncompromising side of Esteban in his on-track battles, too.

Remember that message from Fernando Alonso after their lap-one battle in Hungary in 2022? “Never in my life have I seen a defence like Esteban’s today. Never.” From time to time you’ll hear other drivers bemoan his ‘elbows out’ racing style.

Ocon’s former boss, Otmar Szafnauer, suggested that the media refer to Esteban as a “defence minister in French”, citing the way Ocon held off Lewis Hamilton on his way to P4 in the wet race at Suzuka in 2022.

“Ministre de la défense,” Esteban helps us with translation. “Well, I take it. Some people like the way I race, some people don’t. But if I can defend for many laps, especially if there’s a quicker car behind, that I’m quite happy with.

“That’s something I’ve always liked. A good wheel-to-wheel battle, a tough one... Not, you know, being side by side but with half of the track width in between – this to me is not racing – but really wheel-to-wheel, a bit of touching. And yeah, if some people are annoyed when it’s difficult to pass me, I think I’m fine with that.”

“I’m not going to let anything go after I’ve worked so hard to get where I am. You see how many hours I put in every day here”

MOMENTUM SHIFT

He’s come a long way. Certainly a lot further than you might have assumed if you just looked at where he’d come from. And yet it’s also undeniable that Esteban’s career has lost a bit of momentum. Ocon is not that young anymore, and there are other talents the F1 world is getting excited about – whether it be Oscar Piastri or the hotly touted Mercedes protégé Andrea Kimi Antonelli.

But there’s plenty to be proud of, too. Some remarkable performances in his Force India stint, then a return to the championship after a year off having lost his seat for well-documented non-performance reasons. Shrugging off a difficult year against Daniel Ricciardo at Renault to secure a three-year extension with a works team, then outscoring Fernando Alonso over their two years together – even if, as Alonso liked to point out, car number 14 suffered the majority



“There are only 20 drivers in F1 and I’m enjoying every lap I do. And I keep believing that if I keep working the way I’m working now, good things will happen”

of the mechanicals. Ultimately it’s not bad when a two-time world champion is having to reach for reasons for being behind you in your intra-team battle.

There’s also the fact that Ocon lives in a beautiful part of the world, trains in a place with postcard views, and doesn’t have to worry about what’s in his bank account.

Nevertheless, there’s a lot more hype surrounding the new up-and-coming guys.

“It’s crazy how time flies,” he says as we jump into Esteban’s corporate A110S on his way home. “But yes, I’m not young anymore. Obviously I’d love to take the next step now. I’ve been racing in the midfield all this time, fighting for points. But I want to be fighting for podiums, for wins. And, at the moment, we’re not able to do that – so it’s hard to swallow.”

It looks as if he has another challenging year ahead of him now. The team, restructuring once again, looks hardly likely to give him a car capable of winning any time soon.

“I had exactly this conversation with Antoine Dupont, the rugby player, the other day,” Esteban says. “And he said, ‘it’s so hard to take, that it doesn’t depend on you alone’ – and that’s true for any team sport. But Formula 1 is probably the only sport in the world where, even if you’re the best, but you don’t have the right tool, you just can’t outperform that.

“But I always believed that if you start thinking about F1 like that, then you’re not going to move forward. You’re just



Not a bad location for training or, for that matter, an in-depth interview with GP Racing. Ocon treats both the same, giving us his full attention

going to be constantly depressed. There are only 20 drivers in F1 and I’m enjoying every lap I do. And I keep believing that if I keep working the way I’m working now, good things will happen. Otherwise there’s no point in keeping going.”

He’s at the stage of his career where he probably needs some luck for *really* good things to happen. For Esteban to get a championship-level car in his hands, he’d need something akin to what happened to Jenson Button in 2009.

In fact, you could make a good case that Ocon right now is a bit like Button in 2008. A bit over a hundred F1 starts, a handful of podiums, a single leftfield win in Hungary. If Honda hadn’t sold Ross Brawn its F1 team in that famous one-pound transaction, we’d probably be referring to Jenson now as “a good driver, but not champion material”. But we don’t.

But if stories like this happened often, Keanu Reeves wouldn’t be making documentaries about them.

■ A TALE OF TWO DREAMS

Despite his association with Mercedes, Ocon hasn’t been offered a seat in the works team – at least not yet. Does he feel the timing was never quite right? Was he simply too young when Nico Rosberg vacated his seat? And was Valtteri Bottas ►



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Ocon has persuaded his dad to close his garage and only work on his cars now, although Esteban could still get his hands dirty if required

too good a team player?

“I can’t remake the past,” Esteban says. “I’d just done half a season with Manor when the Nico thing happened... It’s hard to say. At some other points I had opportunities to take a different path, but things didn’t come that way. I have no regrets. I need to make sure I’m on top of my game for the day when I’ll have the car that I need.”

Any F1 driver, regardless of age, accomplishments and reputation, will insist the dream is to become world

“They gave everything they had – their energy, their home – and more to help me and completely sacrificed their life to make mine better”

champion. Ocon is no different. But he’s always said he has two dreams. The one about the title, yes, but also the one about making it so that his parents never want for anything.

“They gave everything they had – their energy, their home – and more to help me and completely sacrificed their life to make mine better,” he says.


“And I’m very proud and happy to be able to give the ball back and help them have an easier life and make them experience things they were never able to experience. And it’s a great feeling, that.”

That second dream is achieved now. 18 months ago Esteban finally convinced his father to close his garage to outside clients – now the only cars he services are Esteban’s cars. But the first dream remains the most important to the family.

“My dad will always say that he’s happy, but he wants me to win,” smiles Esteban. “That’s the competitive spirit they’ve engraved in me. Until we get there, we’re not going to be completely happy. And it’s awesome, because nobody thought we were gonna make it this far. Yet we still made it.

“It was a crazy journey. And I think about that a lot more now than in my first stint in F1, when I was so focused on what I had to do, that I kind of forgot about all this, how lucky we are to be in that position. It’s something that year on the sidelines helped me to fully realise. But, as I say, we’re humans – and we’ll always want more.

“My dad says: when you start something, you must finish it. That’s the way I was raised.”

And that’s probably just another reason why after almost every race he will keep coming back to his ally Xavier, pushing to get better at everything – including the ability to vaporise spaceships with his eyes. 



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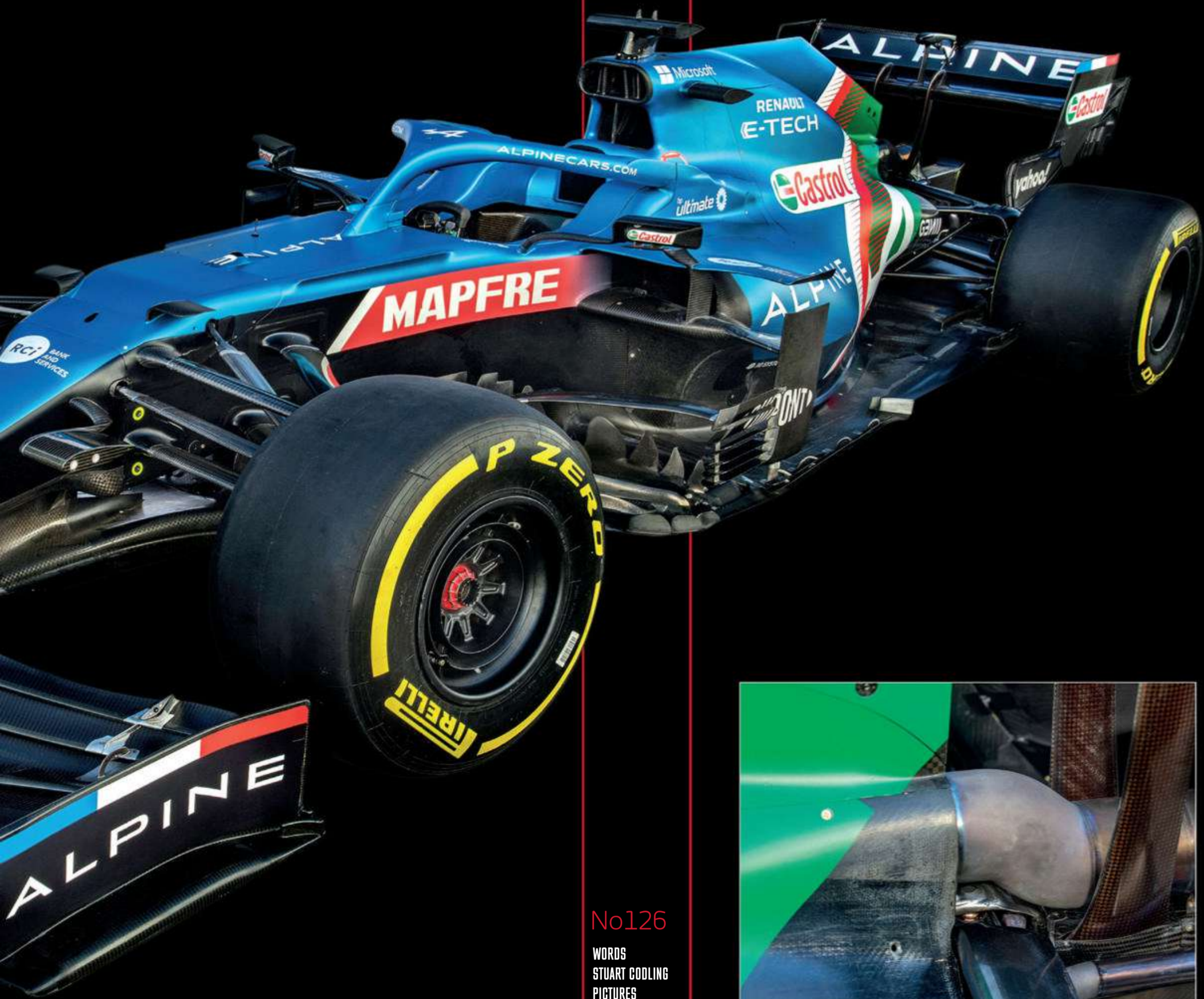
ALPINE A521

An unlikely winner until Esteban Ocon seized the moment...



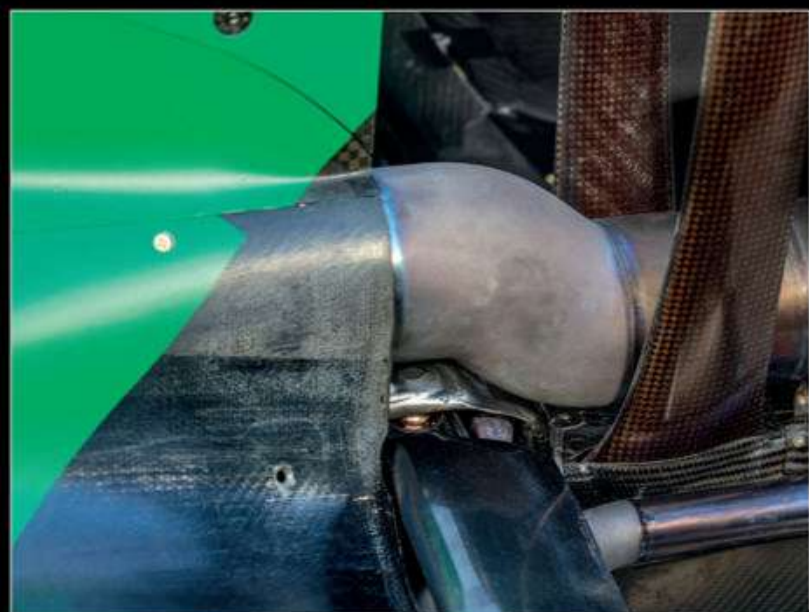


NOW THAT WAS A CAR



No126

WORDS
STUART CODLING
PICTURES
JAMES MANN



Rare it is indeed in modern Formula 1 for a team to race a car virtually identical to the one with which they contested the previous season. Rarer still for such a car to have been effectively signed off by technical leaders gone from the factory for well over a year.

But 2021 wasn't like many other years in grand prix racing: a Covid-shadowed outlier where F1, having pulled off the remarkable feat of staging a contractually complete season despite the pandemic, had to navigate many of the same uncertainties all over again. Instead of providing the launchpad for the new ground-effect era, as originally scheduled, this was a year of make-do-and-mend, to the relief of the three teams which had swerved bankruptcy – and indeed F1 itself, having undergone a radical process of enforced financial engineering to survive.

The crisis wrought an outbreak of unity among the stakeholders, born of self-interest: collectively agreed measures such as a budget cap, delaying the new regulations until 2022, and imposing tight restrictions on development helped the show to stay on the road. But it made for a great number of challenges at Enstone, where Renault was rebranding its F1 operations in the colours of its sporting marque, Alpine.

Chassis technical director Pat Fry had been in situ since February 2020, having replaced Nick Chester in one of the team's frequent restructures. He therefore inherited the RS.20, which had been laid out under Chester and former head of aerodynamics Peter Machin, then had less opportunity to develop it owing to the disruption caused by the first waves of the pandemic – and then F1's new development restrictions dictated what Fry referred to as "enforced carryover". Under the new coat of paint and revised aero, then, the A521 had fundamentally the same hard points as the RS.20 – not a race-winner but good for three podiums in the hands of Daniel

IT WAS CLEAR FRY'S TEAM HAD POURED GREAT EFFORT INTO RECONFIGURING THE A521'S COOLING ARCHITECTURE



ALPINE A521

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Ricciardo and Esteban Ocon during the compressed 2020 season. The key challenge was to identify and exploit the areas of potential improvement before switching development resources fully over to ground-effect project.

"Although various chunks of the car are homologated," said Fry, "so you can't change them, there's still quite a lot that's open and up for grabs.

"You can't do a whole new car, but you can definitely do half a one. We're working our way through what we think is sensible there and trying to do as much as we can."

At Enstone some of the busiest staff must be those tasked with etching executives' names and job titles onto office doors, such has been the churn in recent years. The RS.20 was born into tumult and transition and it was reborn as the A521 in similar circumstances as Renault Group boss Luca De Meo sent long-time team principal Cyril Abiteboul on his way ahead of the launch. Renault Sport Racing president Jérôme Stoll had already cleared his desk at the end of December 2020. Into the driving seat came the ambitious young executive Laurent Rossi, formerly director of strategy and business development for the Renault Group, now bearing the more typographically economical job title of Alpine CEO.

While this role also gave Rossi overall responsibility for the F1 team, it was expected that executive director Marcin Budkowski and newly recruited racing director Davide Brivio – a MotoGP veteran – would be in charge of the day-to-day business. In the coming months, though, both would be pushed aside as Rossi decided he preferred to be front of house.

Still, as the team embarked on a technically chaotic 'virtual launch' – even when the feed was working, the scene more closely resembled the character selection screen from the video game *Mortal Kombat* – much of the soap opera lay in the

future. At that moment the most exciting development beyond Alpine's rebrand was the return of double world champion Fernando Alonso in place of McLaren-bound Ricciardo.

Alongside development restrictions, the FIA also mandated changes to the floor, diffuser fences and rear brake aerodynamic furniture. These were introduced with the explicit intent of cutting downforce by 10%, ostensibly to protect the current generation of Pirelli tyres from failure-inducing loadings... although Mercedes spin doctors quietly insisted the aim was to curb that team's dominance. Typically for measures introduced at short notice and without much in the way of practical research, these cuts came freighted with unintended consequences – causing rear-end instability which exacerbated tyre degradation rather than mitigating it.

"The floor change, although it looks quite small and insignificant, how it actually changes the aerodynamics at the back of the car is quite dramatic," said Fry, who described the A521 as "evolution rather than revolution".

While there were a number of detail changes to the suspension, particularly the location, mounting and geometry

of the rear wishbones, it was clear Fry's team had poured great effort into reconfiguring the A521's cooling architecture to slim down the sidepods. This wasn't apparent in the renders released at launch but it was when the car hit the track in testing: although the bulbous new airbox drew the eye, this was a compromise the team was prepared to make for tighter hips.

There were questions over how much the airbox would impact the performance of the rear wing, but Alpine insisted all was well in that department – until the results on track began to indicate otherwise. At the season opener in Bahrain, Ocon failed to advance beyond Q1 and laboured to 13th at the flag, a lap down. Alonso raised hopes by starting ninth but then retired when one of his brake ducts ingested an errant sandwich wrapper, causing temperatures to spike. This set the tone for Fernando's third spell at 'Team Enstone', a narrative of increasing disgruntlement at car number 14 suffering the majority of the reliability issues.

Despite a small package of updates to the wings, floor and diffuser, both cars scraped into the points at the following rounds in Imola and Portimao, by which time the team was



under pressure from above and dusting down the excuses. Budkowski admitted that there had been “hardware issues” with the windtunnel which had compromised vital simulations of the effects of the revised floor regulations.

Come mid-season, Alonso was consistently picking up points at the back end of the top 10 – sixth place in Baku rather fell into his hands courtesy of the tyre-failure chaos – while Ocon’s form, particularly in qualifying, mysteriously evaporated. The *Drive to Survive* episode from this season focusing on him also provided a window into the internal politics at this time: in one sequence Rossi and Brivio are depicted hunkered down, having a quiet but urgent conversation in hospitality (subject: what to do about Esteban) while an excluded and pensive-looking Budkowski tries to listen in from a distant table.

While the A521 continued to be problematic, particularly

in terms of race pace, Ocon had outqualified Alonso 4-2 in the opening six rounds, starting fifth in the Spanish Grand Prix. Alpine’s confidence in him was such that it announced a three-year contract extension on the eve of his home race at Paul Ricard. But that round was the beginning of the slump as he missed the Q3 cut – and worse was to come in the double-header which followed at the Red Bull Ring.

In Austria Ocon failed to get out of Q1 in both race weekends, crashing out on the opening lap of the second after trying too hard to make up places. He had been half a second off Alonso’s time in Q1. The nattering nabobs of the commentariat put the timing of this together with the timing of Ocon’s contract announcement and concluded he had started slacking off.

Despite the ongoing grind of internal politics, Alpine backed its man and gave Ocon a new monocoque from Silverstone



**AT THE END OF THE LAP
TO THE GRID, ALL BAR
HAMILTON PEELED
INTO THE PITS TO
CHANGE TO SLICKS**



ALPINE A521

NOW THAT WAS A CAR

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onwards. Analysis of the discarded parts revealed a defect in a front suspension component, but nothing else conclusive.

“We’ve done some tests on the chassis,” said Budkowski, “but we haven’t seen anything untoward in terms of rigidity, or the things you would get normally if the chassis has an issue.

“We just found a small issue, a front suspension element, and it was fairly minor. But some of the things it would have provoked were some of the symptoms that Esteban was describing. Whether it was worth all the lap time as such, I don’t think it was. But in reality, if you have something small that destabilises a driver and as a result, he loses confidence, then it could be a few tenths coming on top of that.”

Whether or not the issues were predominantly in Ocon’s head, his mojo returned at Silverstone, where he progressed to Q2 and made it into the points (albeit three places behind Alonso). But better things – unprecedented, even – were to come in Hungary.

Sunday at the Hungaroring was one of those increasingly common Central European summer days where the weather can turn in moments, in this case from wet to dry as the action got under way. Rain ahead of the start meant the entire field started on Pirelli’s intermediates but, as the sun emerged and the wind continued to gust, the crossover point to slicks was surely not too distant.

Lewis Hamilton led away from pole while his Mercedes team-mate Valtteri Bottas made a mess of the start, wheelspinning away from his grid slot as the McLaren of Lando Norris and the Red Bulls of Max Verstappen and Sergio Pérez drove around him. At Turn 1 Bottas compounded his error by braking too late, hitting Norris, who in turn

collected Verstappen while Bottas cannoned into Pérez. Behind, Lance Stroll overtook Ocon by taking to the grass – and then hit Charles Leclerc’s Ferrari, pushing it into Norris’s team-mate Daniel Ricciardo.

Ocon, reflexes no doubt honed by his dedication to reaction drills (see p32), threaded his A521 through the hole that fleetingly opened in front of him. From eighth on the grid he was now running second to Hamilton as first the Safety Car was deployed, then the race was red-flagged so the debris field could be cleared.

If it appeared the circumstances of the race could not become more peculiar, this was merely the *hors d’oeuvre*. In the absence of Norris, Bottas, Pérez, Leclerc and Stroll – Verstappen was present, albeit in a car now lashed together – the field circulated for a standing restart on intermediates. At the end of the lap to the grid, all bar Hamilton peeled into the pits to change to slicks, leaving Lewis the only driver to observe the usual starting procedure.

Alpine’s pitwall had only made the final call two corners before the pit entry. But the tyres were ready and the pit crew on point: Esteban bolted out of the box and was at the head of the queue to be released once Lewis passed the pit exit.

Behind the confused and rather annoyed Hamilton’s Mercedes, the rest of the field boiled out of the pitlane. George Russell took advantage of the Williams garage’s location at the far end to cheekily jump the queue, briefly inserting himself ahead of Ocon before being instructed to hand the illicitly gained positions back. When Hamilton pitted for slicks at the end of the lap, emerging in 14th, Ocon had the lead. Given the A521’s tendency to be hard on its tyres, most observers felt it ▶



was surely only a matter of time before he lost it.

Esteban – and, crucially, his team-mate – had other ideas. Verstappen might have been out of the mix but Hamilton had the car beneath him to make up the deficit, even if it was over 18s. More immediately there was the problem of second-placed Sebastian Vettel in the Aston Martin, who pushed and challenged over the opening 20 laps while Ocon had to juggle defence with tyre management.

Help came from an unexpected quarter in the form of third-placed Nicholas Latifi, driving the opening stint of his life for Williams and holding up a train of cars (including Alonso in P6). At the end of lap 22 Latifi pitted, releasing the chasing pack, and Ocon got the signal to strike tyre management off his list of priorities and drive flat-out to build a gap to Vettel ahead of their own stops.

At the end of lap 36 Vettel bolted for the pits to swap from mediums to hards. Hamilton by now had made his way into fifth place. The attempt to undercut Ocon might have worked –



ALPINE A521

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had Vettel not gone in too hot, locking his rear tyres on the final approach to his box, triggering the anti-stall and sliding past his marks. Esteban emerged from his own stop ahead and thereafter had Vettel under control, save for a brief moment of peril while lapping Antonio Giovinazzi's Alfa Romeo.

A relatively early stop for hards had gifted Hamilton some clear air but it put him out of

sync once he reached the frontrunners. He lost impetus while running in fourth behind Sainz's Ferrari, running on fresher hards, so Mercedes pitted him again for mediums at the end of lap 47, teeing up a fascinating final stint. He lost just one position by stopping and, at first, he tore lumps out of the 22.7s gap to Ocon. But the fourth place Lewis had conceded was to Alonso, who had no intention of letting him through easily.

Fernando had already driven a quietly masterly race, subtly leaving enough of a gap ahead of him during the lap to the grid that he didn't have to wait and lose places while Ocon was being serviced, then carefully managing his tyres so he was the last caller of the one-stoppers. Now he flexed his phenomenal talents in service of his team-mate, frustrating his old rival Hamilton at every turn for a crucial 11 laps – despite Lewis being within DRS range.

"I knew more or less what the situation of the race was," said

OCON GOT THE
SIGNAL TO
STRIKE TYRE
MANAGEMENT OFF
HIS LIST OF
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DRIVE FLAT-OUT
TO BUILD A GAP



Alonso later. “I was looking at the big screens. I knew Esteban and Vettel were fighting and they were two corners in front of us. With 20 laps to the end and Lewis coming two or three seconds faster, that was enough to probably win the race [for Mercedes].”


By the time Hamilton got through, he was 9.4s in arrears to the leader with five laps to go – and two more cars to pass before he could challenge for the win. Rather too much even for a seven-time world champion and, though he got by Sainz for third, Ocon and Vettel stayed ahead (though Vettel was subsequently disqualified when his car was found to have insufficient fuel aboard to provide a sample).

While Ocon would bank eight more points finishes, this was his lot so far as podiums were concerned. Alonso’s third place in Qatar was his only podium of the season and Alpine finished fifth, 120 points adrift of McLaren.

While the team’s form fizzled rather than sizzled, at least there was now an opportunity for Fry and his engineers to set

out their own vision in the new ground-effect car. And, yes, it would be a busy winter for Enstone’s etchers of names as Rossi continued the restructuring process, moving Brivio off into a nebulous young-driver development role and “ending the collaboration” with Budkowski, while bringing in Otmar Szafnauer as team principal.

Four-time world champion Alain Prost’s consultancy deal also ended – in acrimonious circumstances. A leak to F1’s official website claimed the team had terminated the deal, while Prost retaliated by saying he had refused the offer of a new deal for 2022 because Rossi “told me he no longer needed advice”.

What was that famous quote about those who cannot learn from history being doomed to repeat it? 

RACE RECORD

Starts 42
Wins 1
Poles 0
Fastest laps 0
Podiums 1
Championship points 155

SPECIFICATION

Chassis Carbonfibre monocoque
Suspension Double wishbones with pushrod-actuated inboard torsion springs and dampers (front), pullrod-actuated inboard torsion springs and dampers (rear)
Engine Turbocharged hybrid Renault E-Tech 20B V6
Engine capacity 1600cc
Power 960bhp @ 15000 rpm
Gearbox Eight-speed semi-automatic
Brakes Carbon discs front and rear
Tyres Pirelli
Weight 753kg
Notable drivers Fernando Alonso, Esteban Ocon

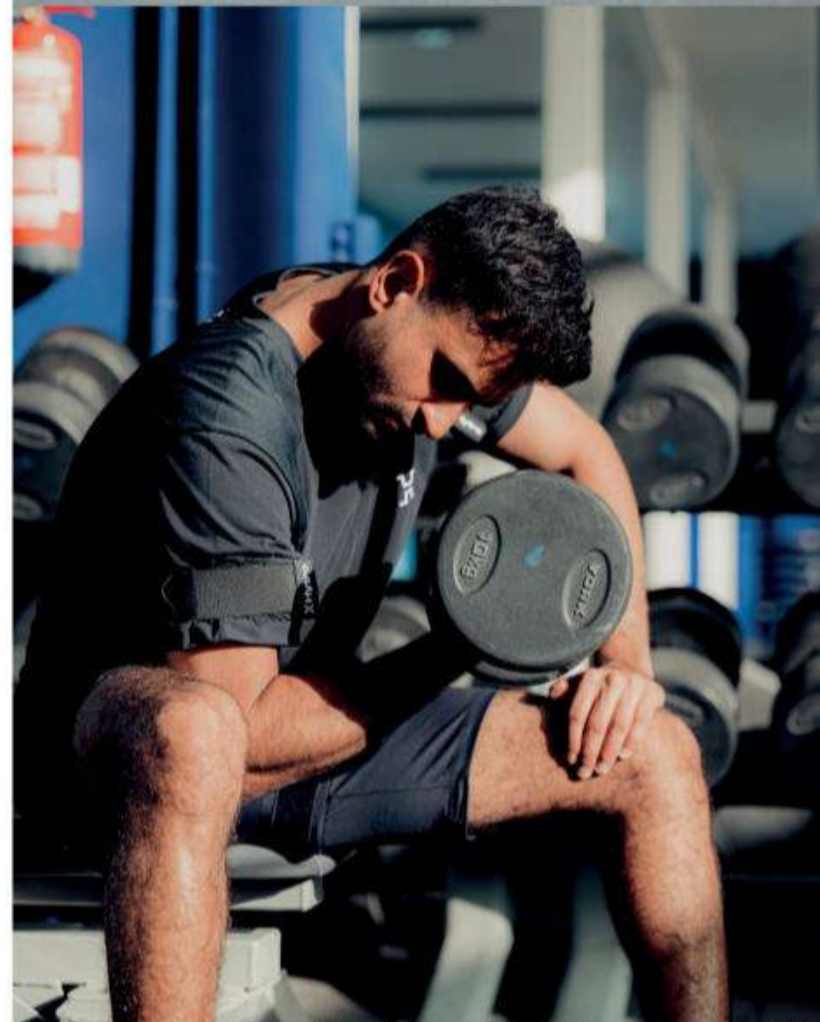




TRAIN. EAT. REPEAT

For young drivers aiming to make that final leap from the top feeder categories to Formula 1, there's a price to be paid – in sweat...

WORDS OLEG KARPOV
PICTURES ALPINE



SIX racing drivers are playing beach volleyball – and it’s painful to watch. Gabriele Minì, who will spend the 2024 season racing for Prema in F3, wins six points in a row for his team through only his serve. And it’s not that his serve is that good – it’s because the other team is that bad at intercepting the ball before it hits the sand.

This is one of the activities in the Alpine junior team training camp in Tenerife, ahead of the racing season. Minì is teamed up with fellow F3 driver Nikola Tsolov and F2 driver Kush Maini, while on the other side of the net are Victor Martins, Sophia Flörsch and Olli Caldwell. But even if this volleyball match looks like madness, there’s methodology in it.

The match is the ‘bit of fun’ part of the programme set out by David Thompson, Alpine’s Head of Human Performance. A day mostly made up of physical training within the large Tenerife Top Training facility – where other professional athletes are diligently preparing for the Paris Olympics – is broken up by some ‘games’. This is partly to give the drivers something of a breather – but only partly.

“They might not think we’re watching,” Thompson confides as he watches the volleyball match unfold in the company of *GP Racing*, “but we’ve put them in different environments, situations where we can see how they react – teamwork, communication – and we can relate some of that to performance on track. So, for instance, if we got one guy who’s quiet in the corner, and doesn’t say a word to anyone, is he going to be a good communicator with his engineer, with his mechanics?”

As the game progresses, it starts to look more like a competition. Some rallies reach as many as 10 attacks back and forth until the ball finally ends up on the sand. The competitive spirit is flaring – there’s now more shouting and arguing, some of it heated enough to prompt the marketing team, also looking over the game, to Google the rules of volleyball to resolve the disputes.

Dave’s report later that evening – usually completed close to midnight – will probably not include the final score of the game itself. That’s irrelevant. Instead, it’ll be filled with his notes about the drivers’ teamwork, how they responded to their own errors and, no less important, others’ errors – not just in the volleyball game but throughout the day.

Because driving racing cars fast isn’t the only skill required to be a professional driver.

“From this report,” Dave says, “We can say, OK, these were the weaknesses for this driver. This is what we need to employ throughout the year. If this guy’s awful at timekeeping, he’s always late, he’s always forgetting stuff, let’s pick this up early.”

ALL ABOUT THAT BASELINE

Principally, though, the camp is about establishing a baseline of physical condition. With all the in-season travelling – and this is definitely no less true for F1 – drivers can only really maintain their form, so the winter is crucial for getting to a high initial level.

Thompson’s schedule for the camp, spanning just under a week, includes various



Thompson will be looking at more than just physical performance in the camp



training sessions and bonding activities but also marketing activities like photo- and videoshoots, since that's also such a big part of the sport now. And *GP Racing's* presence is a good opportunity to conduct some interview training as well.

Victor Martins, the most senior driver in the Academy, looks the most obviously well-prepared of the drivers; he was once a gymnast. Even so, he prefers for Dave, a former physio for Romain Grosjean, to plan out his training sessions.

"Dave is... He's tough on us!" Victor laughs. "But he's good. I've worked with him since 2018. We know when it's time to work and when to chill. He's helped me with many things, given a lot advice, based on what he experienced working with Grosjean.

"He shows me these pictures sometimes, tells stories. He's kind of always reminding me what is waiting for me – or what I hope is waiting for me – in the future. He knows I have a good base. My physio is also coming from him. Back in 2021 he chose the guy I'm working with every day now. And I'm constantly in contact with Dave as well. So yeah, he's tough on us, but it's exactly what we need."

That sort of personal connection is what Thompson relishes, too. He's still friends with Grosjean, whose career Thompson helped transform in 2013 after a crash-filled 2012. And he's still in touch with a lot of former Academy drivers, including Oscar Piastri and Zhou Guanyu. Caldwell's presence is a useful example of how drivers value Thompson's experience – despite being no longer an Alpine junior, Caldwell still asked to join the camp, preparing for a European Le Mans season in which he's part of a three-driver crew.

And the ability to work in a team is one of the qualities Thompson wants to cultivate here. After all, as much as racing is an individual sport in a sense that no one helps drivers to actually drive the car, *esprit de corps* is a huge part of it too.

"I'm coming from a football background," says Thompson, who worked for Reading FC before moving to F1. "And it's a lot about camaraderie there. But in motorsport it's important, too. The whole team, when you spend that much time with each other, you build a bond, and you can then offload to each other and tell each other things you might not say to other people – and it does reflect on performance.

"I think it helps you grow up quite a bit as well. It was the same with me and Romain. We used to joke and say we were each other's wives, because we saw more of each other than our wives when we were travelling.

"Being good communicators and good team players is important. And that's what we try to work on as well. You might have one who's always just sitting in the corner, you might have someone who will help put all the kit away. And actually, if we employ this vision on track: who's going to be the best one to help the team? Who's going to help if they shunted the car in a practice session and need it ready for quali? Will they try and help? Or will the team have the driver who just sits back and expects it to be done?

"We don't preach here. But we try and give them the grounding we think they need to help them make it through."

ANOTHER LEVEL

But the main task is still the physical preparation for the long season ahead. And this is also why there are only five current Alpine juniors here – the programme is built for the F2/F3 level, the last steps of the junior single-seater ladder. There's a different

From Enthusiast to Expert



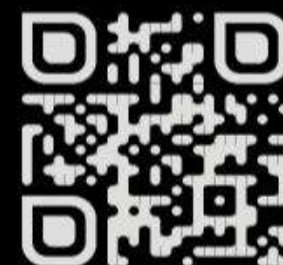
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programme for those in lower formulae or in karting.

“You need to be smart here,” explains Dave. “They [F4 and karting drivers] aren’t going to get anything coming here. But we do cater for that group as well. Here, it’s also quite hard to do individual programmes but we can change what we need to change individually for the drivers. Yet we kind of set the standards we expect for the year.”

The day of intensive work spans 9am to 5pm, with a lunch break and hour of free time.

“It’s important they get their downtime as well, because it’s a physically demanding week,” says Dave. “It’s not like we just beat them all day, every day. They do need that downtime. Maybe not as much as they want. But they come here for work, not a holiday. These guys and girls are at the age now where they’re professional athletes, and they need to start thinking like that. So when we’re here, they immerse themselves in all the Olympic teams. They can see how they do it, and it’s also a bit of an eye-opener. So they can absorb everything. And it gives them that challenge and vision of what they need to reach that level.”

After the lunch break and downtime, we move into the gym room for what will primarily be ‘racing’ exercises – specifics such as neck and reaction training. Thompson himself joins in.

“I always try and train with them here,” Thompson says.

“And I always say ‘I would never give you anything or ask you to do anything I couldn’t do’. I’m getting old now. I’m struggling. But each year I try and keep up. For me, yeah, it’s nice to know I can still do it. But I think from then it’s like... it’s almost like a natural respect. ‘Yeah, we can appreciate you, you’re doing it too’. It’s fun. And I think it builds more of a bond between everyone as well. Because I think, like any coach, for me the most important thing is communication. If you’re working this closely with athletes, if you can’t communicate with each other, that’s a big part of the puzzle missing.”


As for the only female participant – Flörsch – she not only doesn’t ask for any concessions in terms of physical training but is often among those faring the best.

“When she’s here, she’s treated the same as everyone else,” says Dave. “She doesn’t want to be treated differently. And the whole point is, she wants to compete with the males – and she’s quite vocal about it.

“She would have a bespoke programme which is done individually for her – like every other driver. But when she’s here, we treat her the same. She joins in the same, she wants to be pushed. So yeah, sometimes I feel sorry for her that she’s the only girl here, but she handled it so well. And she’s got such a level head and a really good outlook. As a father of a young girl, I think we need more people like that.”

Flörsch smiles when we put these words to her later, after the last training session.

“Yeah, I mean... not just with Alpine, but also before I always said, ‘I just I want to be a racing driver,’” she says. “And if it’s my mechanics, engineers, or even the trainer, you know, just treat me the same way. I’ll have to deal with it, if I need to work more.

“And I do think that, in the end, women have to work a little bit more just to get on the same level. But I do think it’s possible. I know that there’s others saying it’s not possible, but in my opinion it is. And, yeah, that’s why I’m here to prove it.” 

“IT’S NOT LIKE WE JUST BEAT THEM ALL DAY, EVERY DAY. THEY DO NEED THAT DOWNTIME. MAYBE NOT AS MUCH AS THEY WANT. BUT THEY COME HERE FOR WORK, NOT A HOLIDAY”



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10 THINGS I LOVE



RB's Japanese racer on his love of saunas, good coffee and – well, food, of course



Fashion

I like fashion. I like to choose my outfit according to my mood or where I'm going. And I like to show my colours, if you like. In short, it feels good to look good.

Food

There's no particular cuisine I like, but for me a good meal is a kind of tool to reduce stress and feel happier. It doesn't matter what kind of food it is – if it's good, I enjoy it, whether it's tacos or sushi. I really like pasta. When I'm in Italy that's what I usually eat. But it's important for me, wherever we go, to find a good restaurant so I can enjoy the food. Because in a way, as strange as it may sound, it gives me the same feeling as driving a Formula 1 car. When I drive, I just concentrate on that. It's not that I don't think – of course I do, especially during the race – but when it comes to driving, it's more about the senses than thoughts. When I'm driving I don't think about anything else. And it's almost the same with food. You just enjoy taste and flavour – and I really like that!



Nature

We travel a lot and are surrounded by electronics and computers. Laptops, telemetry, data is our world – and sometimes it's just too much. So I like to get away from it all, to go hiking, for example, or just get out into nature and experience a different environment to Formula 1.



Jason Statham

Definitely my favourite actor, especially after meeting him in Abu Dhabi last year. I've always liked his films and *Transporter* is my favourite – but sometimes when you meet your hero and get to know the person better, you can be disappointed, can't you? It wasn't like that with Jason. He is such a great guy, really nice, talkative, very respectful and really, really strong! He's got everything you need. He's strong, he looks cool, he's bald. I might go bald in the future to look more like him...

Singing

I'm not the one who sings in the shower, but I do sing in the car. I just like it, to feel the rhythm, to have fun. And when I'm singing, I feel like a real singer!



Saunas

It's something I like to use to reset. 20 minutes in the sauna, then a cold shower and lying down – at that moment I feel like I'm in space. And it is an incredible feeling. It feels like your body is resetting itself. It feels like all the stress I have, it just comes out with the sweat, so after the sauna I feel fresh. Like a brand new me. It's funny, I didn't really like it before, but my friends kept telling me how great it was. So one day I just decided to give it another try and finally understood what they were talking about. Now it's one of my favourite things to do: just go to the sauna and relax.



Coffee

I have a good coffee machine at home. I like to grind coffee beans in the morning and make myself a good cup of coffee. Good coffee makes my day.



Wine

I don't drink alcohol very often, to be honest. And I'm not a guy who knows a lot about wine, about different types and varieties of wine. I'm not an expert, if you like. But it's nice to have a glass of wine with good food. It helps you enjoy it even more.



Apex Legends

I used to play a lot more when I moved to Europe from Japan – and Apex Legends was my favourite game. I don't play as much now, but during my junior career it was a way to keep in touch with my friends in Japan because we were so far apart. Of course you can call and chat, but doing something together, playing and talking at the same time, is a lot more fun.



Football

I sometimes play football with the mechanics, engineers and other guys from the team in Faenza. And I love it. Because first of all I like the game itself, but then it's also good to hang out with the guys from the team – especially considering that it's usually the guys who don't go to the races and stay at the factory, so it's also a good opportunity to bond with them.



JUST WHAT I ALWAYS WANTED

The most successful driver of all time is moving to one of Formula 1's most evocative teams – on paper, a highly auspicious partnership. Lewis Hamilton describes it as the fruition of a childhood dream. But challenges lie in the nuance: the clock is ticking on Hamilton's career and Ferrari hasn't won a constructors' title since 2008. What does each party want – need – from this arrangement?

WORDS ANDREW BENSON
PICTURES 



F

rédéric Vasseur is an unlikely paradigm breaker at first glance. The Ferrari team principal's somewhat grumpy resting facial expression soon gives way to a twinkling eye and a ready laugh; he's Formula 1's equivalent of Albert Le Blanc, the children's story about the saddest-looking bear the other toys have ever seen who turns out to be a big roly-poly bundle of joy.

But Vasseur has steel beneath the warm, avuncular exterior. It has not always been apparent in his eight years in F1, managing the Renault, Sauber/Alfa Romeo and now Ferrari teams. But it certainly is now. The 55-year-old Frenchman is the key that unlocked the biggest driver move in F1 for a decade; perhaps even ever – Lewis Hamilton's decision to leave Mercedes and join Ferrari for 2025.

When Vasseur was asked what it was like delivering the bad news to Carlos Sainz, who is now looking for a drive for next season, he said wryly: "It was not the easiest call of my life. But the one that was most difficult was the one with Toto." Vasseur and his opposite number at Mercedes are very close friends, who go back a long way.

Hamilton won with Vasseur's team in both Formula 3 and GP2 before he graduated to F1, and the experience clearly made an impression. "We stayed in touch," Hamilton said. "I thought he was going to be an amazing team manager at some stage and progress to F1, and it was really cool to see him step into the Alfa team. And when he got the job at Ferrari, I was just so happy for him. It really wouldn't have happened without him."

This is seismic stuff. The most successful driver in F1 history joining the sport's most storied team, both parties in the quest to return to the top.

Why Lewis lost faith with Mercedes

Hamilton wants to avenge what he perceives to be the injustice of Abu Dhabi 2021, when his eighth world title was snatched away from him as a direct result of race director Michael Masi's decision to make up the rules as he went along in



a late-race Safety Car period. Ferrari's aim is to win a world championship for the first time since 2008, or 2007 if it's the drivers' title you care about most.

How did this come about? How was it that a matter of months after Hamilton had apparently committed his future to Mercedes by signing what was claimed at the time to be a two-year contract, he decided to jump ship to Maranello?

Hamilton says: "In summer, we signed and at that time I saw my future with Mercedes. But an opportunity came up at the end of the year

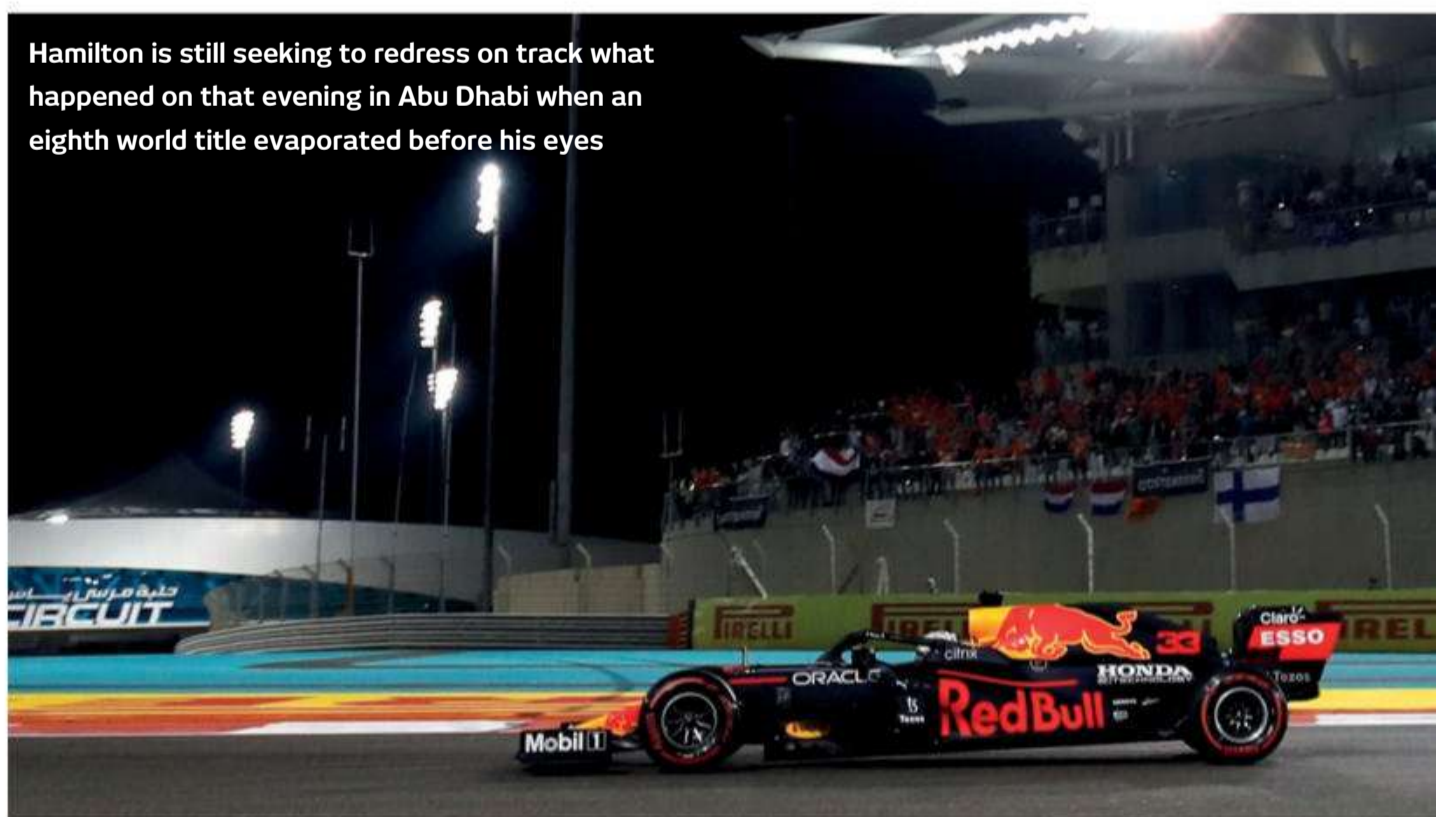


and I decided to take it.

"It was the hardest decision I've ever had to make, I've been with Mercedes, I think it's 26 years they have supported me. We have had an absolutely incredible journey and created history in the sport and I am very proud of what we achieved. But ultimately I am writing my story and I felt like it was time to start a new chapter."

The "opportunity" that came up was that Ferrari chairman John Elkann was made aware over the close season by a senior figure in F1, who must remain nameless, that Hamilton might

Hamilton is still seeking to redress on track what happened on that evening in Abu Dhabi when an eighth world title evaporated before his eyes





Vasseur and Hamilton go back a long way. Fr d was his team manager in GP2 (left and far left) and they have remained friends (below)



be available. Elkann wasted no time in acting, and the deal came together in a matter of weeks.

For Ferrari, the move was a no-brainer. Both its drivers' contracts were coming to their end in 2024. The team was always going to keep Charles Leclerc – it still sees him as the long-term future of the team – but about Sainz there was more ambivalence. Not that it didn't see his qualities; just that it wanted time to be sure it wanted to keep him.

As the 2023 season came to an end, the original intention was to stick with Sainz.

When Hamilton became available, though, Ferrari quickly changed tack.

As Vasseur puts it: "It's a huge opportunity for the team. We are sure that he will bring us a decent step for the future." Or in the words of Alpine driver Pierre Gasly, a close friend of Leclerc's: "Carlos is a great driver; Lewis is a fantastic driver, best of all time. There was an opportunity on both sides and Ferrari and Lewis took it together."

On Hamilton's side, a number of factors came together to make him go for the move, and they

can be traced right back to 2022.

When Hamilton signed his new Mercedes deal last summer, he was talking – as he has done for a long time – as if he would be with the German marque for life. Together, they have been the most successful team-driver combination in F1 history, and he had a number of times mentioned his desire to follow in the footsteps of Stirling Moss and be an ambassador long after his career was over.

But Hamilton's faith and trust in Mercedes has been knocked in the past two years, and it ▶



PICTURES: ZAK MAUGER; STEVE ETHERINGTON



Porpoising was a major factor in Hamilton's disillusionment with Mercedes in 2022 and his call to follow Red Bull's lead for 2023 was ignored



PICTURES: STEVE ETHERINGTON; MARK SUTTON

started with the team's reaction to its failure to get to grips with the new ground-effect regulations in 2022.

Mercedes went for a unique design that, in the virtual world, had so much downforce that it felt it was going to dominate the sport again. But, unlike Adrian Newey at Red Bull, it had failed to consider porpoising – a phenomenon that can affect cars with venturi underfloors if they are sucked too close to the ground and the airflow

stalls, setting up a bouncing motion.

The downforce the Mercedes should have created in theory simply could not be accessed in reality. And through 2022 Hamilton pleaded with Mercedes to abandon the so-called 'zero-sidepod' philosophy, with its forward cockpit, and pursue Red Bull's approach.

The team ignored him. The 2023 car was an updated version of the 2022 car, and Hamilton knew as soon as he drove it in the shakedown at

Silverstone that Mercedes had got it wrong. "I remember it feeling exactly the same, and that definitely was not a great feeling," he said in an interview at the end of 2023.

Hamilton recalls this saga in the latest series of Netflix's *Drive To Survive*, saying: "They said: 'We know what we're doing, you're wrong.' Then we got into the season and we spoke again and they said: 'Maybe you were right.'"

But you didn't need Netflix to know this was going on – even at the time, Hamilton was very clear about his frustrations with Mercedes at the start of 2023.

Belatedly, Mercedes did try to convert its 2023 car more towards a Red Bull-style approach, but its fundamental architecture acted as a limiting factor, so last season ended with an unanswered question – did Mercedes yet understand these new rules? ▶

HAMILTON PLEADED WITH MERCEDES TO ABANDON THE SO-CALLED 'ZERO-SIDEPOD' PHILOSOPHY, WITH ITS FORWARD COCKPIT, AND PURSUE RED BULL'S APPROACH. THE TEAM IGNORED HIM

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LECLERC: KEEP THE FAITH

Charles Leclerc was kept fully in the loop through Ferrari's negotiations with Lewis Hamilton. Leclerc's new long-term contract with Ferrari was announced only a week or so before Hamilton's move, and the 26-year-old says: "These kind of deals are not finalised overnight. It takes time and I was aware of those discussions before signing my deal so it didn't come out as a surprise after signing."

"It was good the team was transparent [about Hamilton] but it didn't change anything for me. More than anything, what made me sign for a longer contract was because I believe in the project and have the best chances to have the best car on the grid in the next years."

Some have interpreted the move for Hamilton as a lack

of faith in Leclerc. But Ferrari doesn't see it that way. He is still its driver for the future.

The intention is for him to stay well beyond Hamilton's time and Ferrari thinks having such an illustrious team-mate will be good for Leclerc, that he cannot help but learn from Hamilton and become a more complete driver as a result.

The potential dynamic is fascinating. Leclerc's raw speed is not in doubt. He has 23 pole positions in 123 starts, a hit rate of 18.7% despite rarely having the best car. That speaks volumes, and many believe he could be the fastest driver in F1 over one lap.

Hamilton is no slouch himself, so the one-lap battle between them will be something to see.

Leclerc has 'only' five wins, but that ratio is

more a reflection of a man outperforming his car's limitations over one lap than the drivers' weakness in races.

Nevertheless, Leclerc does still have things to learn. He could do with cutting down the errors, and reading a race and being proactive with the team is an area where Sainz has clearly had an edge.

In many ways Hamilton has most to lose. He's the bigger name with the greatest-ever career stats. He's expected to be team leader. But what if Leclerc is consistently faster?

Vasseur will need all his management skills to keep it under control. At the same time, Hamilton and Leclerc is a line-up of formidable strength. If Ferrari can sort its car out, even Red Bull will be worried about what it could achieve.

one-year deal with an option for a second. It's not completely clear whether both sides had the option to exit for 2025, but certainly Lewis did.

Ferrari was offering a much longer commitment. Hamilton's new deal is said to be at least two firm years – so to the end of 2026 – and possibly even three. Not only that, but it's more money. Hamilton has been on a basic salary of about €40m at Mercedes for some time now, and as such has lost his status as the best-paid driver in F1 to Verstappen, who is said to be on at least €50m at Red Bull. Which is what Ferrari are believed to be paying Hamilton.

When drivers are earning this much, it's not about the money itself – Hamilton has earned so much for so long that an extra €10m here and there is not going to change his life, surreal as it seems to say that. It's about status, about perceived value. Essentially, Ferrari was saying it valued him more than Mercedes.

Put that all together – a belief that Ferrari's car would be at least as fast as Mercedes', a sense that his team had lost some faith in him, the lack of respect inherent in a feeling he was being used as a stop-gap, and the conviction Ferrari was offering – and the decision comes into focus.

And that's before even considering the lure of the Ferrari name, which was also a factor.

The prize of the price tag

Meanwhile, Ferrari ended last year on a relative high, Leclerc taking three poles in the last five races, and it was the only team other than Red Bull to win a race in 2023, through Sainz in Singapore. On race pace, it still lagged well behind Red Bull, but there was no question that by the end of last season Ferrari had overtaken Mercedes, despite its slow start to the season, even if Mercedes just managed to hang on to second in the constructors' championship.

Not only that, but Vasseur's steadying hand was beginning to make an impact on the team's race operations. This area was still far from perfect – had Leclerc stopped under the mid-race Safety Car in Las Vegas, he might have hung on for victory ahead of Max Verstappen – but the progress over the chaos of 2022, which was partly responsible for losing Vasseur's predecessor Mattia Binotto his job, was clear.

Then there were Hamilton's negotiations over a new Mercedes contract. It's not that long since Hamilton, who was 39 in January, was saying he could not see himself being in F1 past 40, but he entered those discussions wanting a relatively long-term commitment.



If Ferrari's 2025 car is quick, then Vasseur may earn his money managing Hamilton and Leclerc

Mercedes wasn't so keen. Wolff was already looking to the future, and in particular to Andrea Kimi Antonelli, a 17-year-old Italian who has been on Mercedes' young driver programme for some time, and who some already consider to be the next Verstappen. With Hamilton heading into his fifth decade, and Antonelli on the horizon, Wolff wanted to keep his options open.

In the end, they reached a compromise. What was said in the press release to be a two-year deal was in fact what is known as a "one-plus-one" – a

"For every driver growing up," Hamilton says, "watching history, watching Michael Schumacher in his prime, all of us see the driver in the red cockpit and you wonder what it would be like to be surrounded by red."

"You go to the Italian Grand Prix and you see the Ferrari fans. It is a team that has not had huge success since Michael's day and 2007, and I saw it as a huge challenge. I'm really, really excited by it."

Andrew Benson is BBC Sport's chief F1 writer

PICTURES: STEVE ETHERINGTON; SIMON GALLOWAY



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AYAO KOMATSU

Haas F1 has been synonymous with the figure of Guenther Steiner for a decade. But the colourful Tyrolean is no longer in charge, and it's his former right-hand man, Ayao Komatsu, who's been tasked with elevating the team from last place in the standings. How has he done so far?

Ayao, how many meetings did you have with Haas F1 staff before the season started?

Loads. As soon as it was announced on the 10th of January, in the next few days I just tried to have as many one-on-one meetings at our UK base with as many managers, key people as I could – just to get some honest feedback and a feel for it. Then I went to Italy and did the same thing, trying to organise my day so I could do both group sessions as well as individual meetings, to get an understanding of what the difficulties are for these people and what I need to do to help.

What was the main takeaway?

The great thing is that I haven't had to convince anyone to work in a certain way. Because in different areas – be it communications, engineering, trackside, aerodynamics or wherever else – it was basically all the same: we were all wanting, craving the same thing. That was a very positive thing to see. If I had to convince everyone: 'Come on, this is what we have to do' – it's a waste of energy. But no, everyone was on board. 'Let's use this as an opportunity. I totally agree, this is what we should do. Let's do it.' That was really positive.

You must have had an idea of the challenge when you took the job. Was the reality different?

Better. The more I looked into it, the more I saw things we could improve. My understanding of certain areas – I had to guess. But now we have the facts, we can assess the situation much more accurately and move on. Honestly, it was positive, very positive. And also the people... I rely on

many, many people now, but from day one I said: 'I'm not going to do your job for you – it's not going to work. You are talented. You know what you're doing, just tell me what I need to do to give you the environment'.

Is it hard not to micromanage the engineering team, coming from that background yourself?

I don't know if it's difficult or not, but I'm definitely aware of it. And I actively think about it. For example, during the [Bahrain] test, I had to try not to get involved in certain communications. I really try to stay in the background, a few steps back, but still aware. Because if I'm not aware when I need to make certain decisions, I can't make the right ones.

So you're still convinced that this team – with the resources it has and the structure it has – can do better?

Even more so. Absolutely.

Just because of the feedback you've had?

A combination of things. In some areas, for example, it's worse than I expected. But then

I'D LIKE TO THINK I LEAD BY EXAMPLE. I THINK IT'S IMPORTANT TO BE CLEAR ABOUT WHAT WE'RE DOING AS A TEAM

there's more room for improvement, right? And there are many areas like that – so I'm sure the gain we can make is big. If you get people together, create the environment and communicate better to get everyone on the same page – that multiplies the effect, doesn't it?

How do you like the media side of the business? You didn't have to deal with it before, but as team principal is it important for you now?

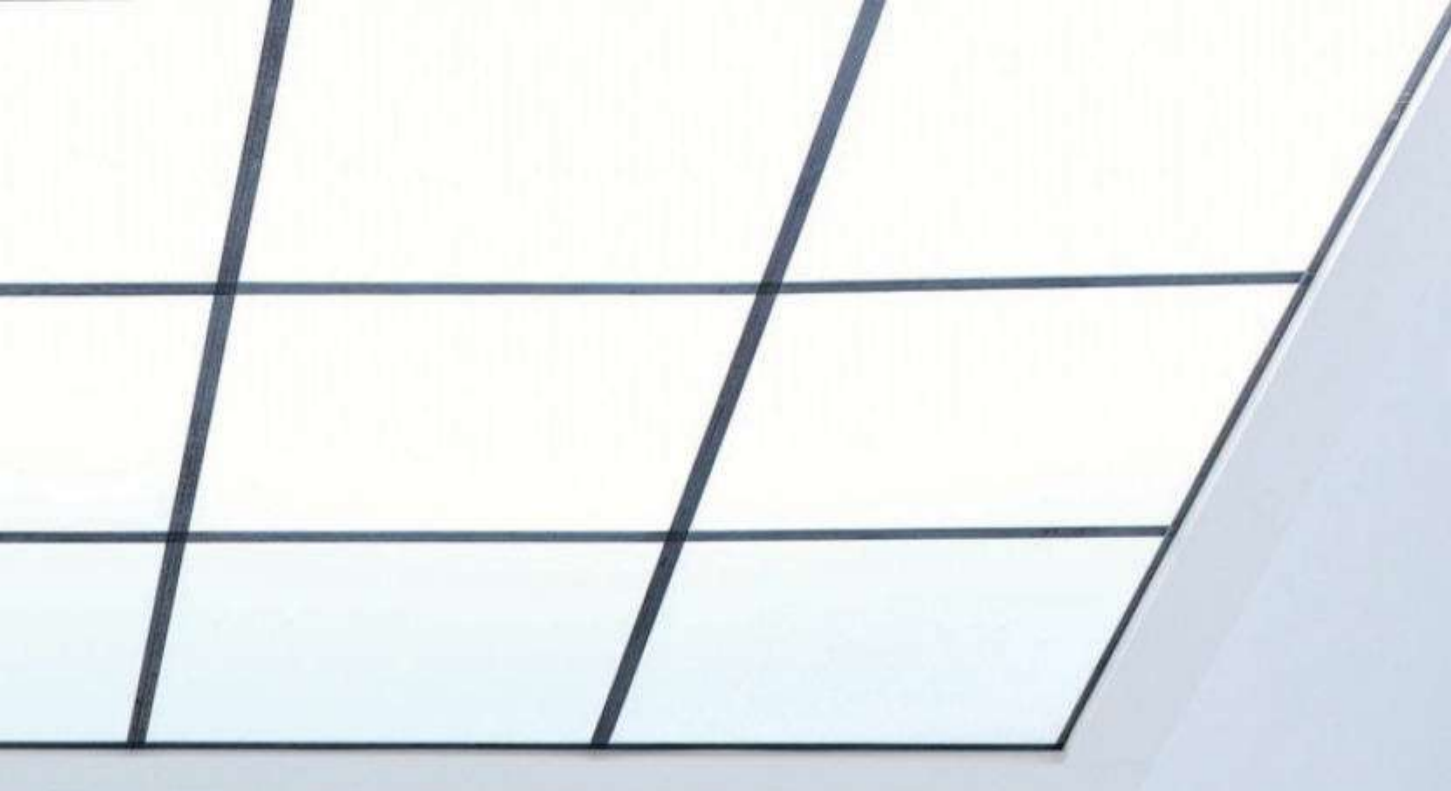
Yes, in the sense that I want to be consistent. Because the people, the employees, they read it too. If I say one thing on the internet and something completely different internally, it can be confusing, right? It's important to see the consistency, especially for people who aren't at the track: when they read comments from Nico [Hülkenberg] and Kevin [Magnussen], comments from me... Imagine if all those were all over the place? Then people in the factories would be thinking: 'Oh my God, they are not aligned'.

What kind of leader are you?

I'd like to think I lead by example. I think it's important to be clear about what we're doing as a team and to communicate well with everyone so that people understand what this team is about and what we're going to do. Be it this season, three years from now, five years from now. What's your vision for the next 10 years? I'd like to think I can come up with the strategy and communicate it and also empower people – and as you said, not micromanage. They're the ones who need to tell me what to do for them rather than me telling them what to do.

RICCIARDO'S ROAD BACK





“THE MOST EXCITED PEOPLE WHEN DANNY RICCIARDO CAME BACK WAS NETFLIX.”

Nestling nicely in amongst Williams driver Logan Sargeant’s torturing of the English lexicon is a good point. One the American was making to a Netflix camera in the latest series of *Drive to Survive*. In 2023, the hit streaming show got back its undisputed biggest star, almost without him ever having to leave.

You can see the production company’s delight in the sixth series, where Ricciardo’s two returns are granted two episodes. But this was no Netflix navel-gazing exercise. The Australian became one of 2023’s biggest stories with his return to replace the ousted Nyck de Vries at what was then called AlphaTauri, plus his own second return – latterly from injury following his crash and broken hand at the Dutch Grand Prix.

Now in 2024, Ricciardo remains central

Daniel Ricciardo has a prime opportunity to stake his claim to the second Red Bull drive alongside Max Verstappen. But why go back when it didn’t work out first time around? Should ‘New Dan’, the consummate professional, see out his F1 career as a safe pair of hands in the second team? Decisions, decisions...

WORDS ALEX KALINAUCKAS PICTURES  AND RED BULL CONTENT POOL

to what should be one of the biggest off-track talking points of the new campaign. Will Daniel now return to his previous cherished home at Red Bull?

Before we get there, it’s important to consider two elements. ►

RICC'S REPROFILING

The first is the manner of Ricciardo's return in 2023. After his chastening experience over two years at McLaren as Lando Norris went from strength to strength in the other orange cars – Monza 2021 and McLaren's 2022 overall fallow period aside – Ricciardo cut a deliberately different figure.

"All of our profiles have grown in the last few years, in particular, since *Drive to Survive*," Ricciardo said after returning from injury at the 2023 Austin race. "Just me with my personality and also just having some fun with the sport. That probably got a little bigger as well, because of that. It draws a few LOLs every now and then but I think generally, first and foremost, I see myself as a race car driver, not an entertainer or anything like that."

He added: "Through all of this, it can maybe get away from you a little bit in time, so me coming back into it and having a little bit of that time off, it certainly made me figure out what I'm about and how I want to go racing. Removing a few things and kind of going back to a little bit of the basics. Just making sure that I am seen as a race car driver who's still hungry and determined, and not someone who's just here for a good time."

That's not to say he still wasn't out to maximise his profile to a certain extent – Ricciardo appeared on *Jimmy Kimmel Live* ahead of the 2023 Las Vegas GP. Yet, Lewis Hamilton has shown how a driver can dovetail on- and off-track interests and still succeed at the top level. Plus, for Ricciardo his changes since returning to the F1 fold centre on increasing his fitness levels away from the track or otherwise recovering properly from his exertions upon it.

"Having time off I realised that I was probably just doing too much sometimes and probably even just not prioritising myself in terms of my body and my recovery and all that," Ricciardo said at the 2023 Abu Dhabi season finale.

Ricciardo has settled back into Red Bull's second team well, alongside Yuki Tsunoda. But should the Australian be aiming higher than RB?



"I want to see the headline: 'Now Daniel Ricciardo Prioritises his Body!'", quipped Mercedes driver George Russell, speaking in the same press conference.

"It's hard when you don't take as many topless pics as George," Ricciardo hit back neatly. "I hope I answered that in a way that made sense but yeah, that's what I was getting at [in those Austin comments]."

TIGHT FIT

The second important element of Ricciardo's 2024 ties into the first: how does this clearly rejuvenated figure fit in with the complicated 2025 driver market now detonated by Hamilton's Ferrari move for next year?

The market had appeared to be set rather stable when Charles Leclerc and Lando Norris signed yet more contract extensions at Ferrari and McLaren respectively in late January. But Hamilton's decision massively complicated matters for many other drivers.

For Ricciardo, it changed less than others in terms of his options: stay with RB or move back to the Red Bull squad he left chasing that big-money move to Renault for 2019. But the second route is now rather much more complex.

Ricciardo's option to stay at RB as a long-term team leader would seem to suit both parties well. He can ply his trade as the more dedicated professional F1 driver he says he's now aiming to be in this second career coming; and the risks to that job ending are lower because not as much is expected from Red Bull's second squad.

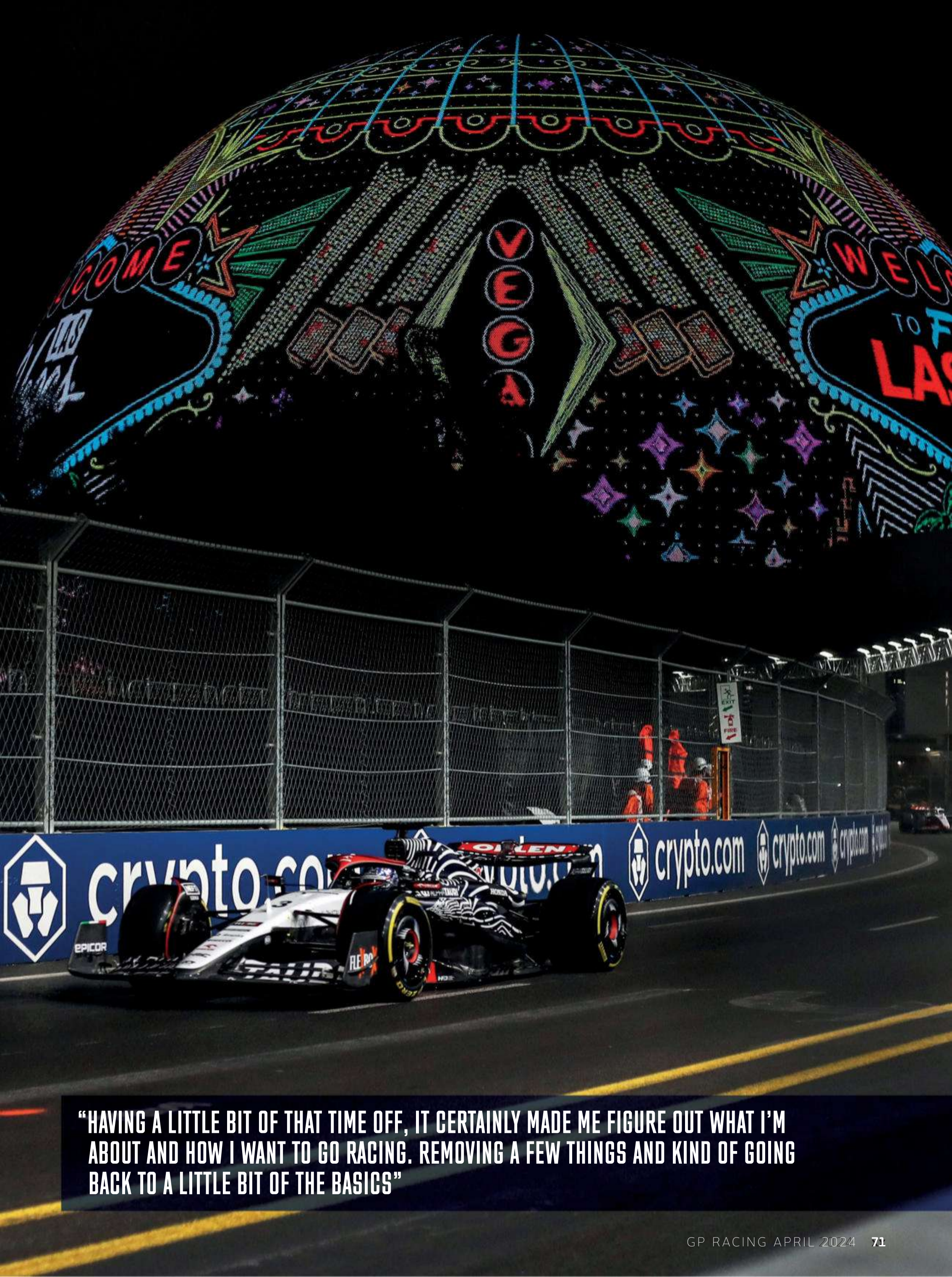
That's other than doing better than the ninth and eighth places it scored in the last two constructors' championships, results that prompted Red Bull GmbH's post-Dietrich Mateschitz management to scrutinise its return on investment in a F1 second team more closely.

RB, a team growing with a major sponsor influx that led to the ridiculous naming saga at the start of the year, knows it has an asset in Ricciardo. Although, so too in his meme-able team-mate, Yuki Tsunoda.

"Honestly, both have been very helpful [for RB marketing], because Yuki is doing extremely well with a very young target group," explains RB CEO Peter Bayer. "I've seen some F1 numbers that the under 14-year olds, they love him. And Daniel, given his popularity, has been definitely helpful."

But there's no denying that RB, even with its car's current impressive low-speed cornering prowess, cannot deliver what all racing drivers ultimately want: victory. And with F1's car design rules set to remain stable until the next new chassis and engine era starts in 2026, ▶





“HAVING A LITTLE BIT OF THAT TIME OFF, IT CERTAINLY MADE ME FIGURE OUT WHAT I’M ABOUT AND HOW I WANT TO GO RACING. REMOVING A FEW THINGS AND KIND OF GOING BACK TO A LITTLE BIT OF THE BASICS”

Red Bull's current advantage at the head of the pack basically guarantees its drivers will be in victory contention at every round until then.

CHECO HIM OUT

Sergio Pérez's current contract is of course up at the end of this season. Rumours suggesting he could even be replaced early this year if he continues to lag badly behind Max Verstappen permeated the paddock late in 2023. Red Bull has made ruthless in-season driver moves twice before, but, critically, not when it has been dominating F1's two championships.

But Ricciardo has openly stated his F1 return halfway through last year had the clear aim of returning to Red Bull. That's with the full knowledge Max Verstappen would most likely be his team-mate given Max's current contract runs until the end of 2028. Yet, there's little sign Ricciardo is scared of such a scenario, or even of playing a clear

number-two role to Verstappen, as Red Bull team principal Christian Horner suggested was the case back in mid-2018.

But Hamilton's move has complicated what appeared to be a previously simple case of Ricciardo

shining at RB and waiting for Pérez to continue to underperform in another stunning Red Bull ground-effect creation.

Carlos Sainz, who matched up well with Verstappen during their one-and-a-bit seasons as



Ricciardo replaced de Vries at AlphaTauri after 10 races in 2023 and Netflix was over the moon...

team-mates at what was then called Toro Rosso (admittedly with the advantage of much more junior formula race experience at that stage), needs a new seat as Hamilton takes his at Ferrari.

It has been suggested it's a formality Sainz will be heading to the soon-to-be-Audi team for 2026 given his father's recent Dakar Rally win for the brand and good relations with its boss, Andreas

Seidl. But it could well take Audi time to win in F1, if it ever does. And so, Sainz is wisely considering all options at the front of the grid. This is a picture made ever more vivid by every Fernando Alonso insistence he might valiantly race on ever long, plus Mercedes

apparently eyeing a Verstappen-like promotion for its Formula 2 junior Andrea Kimi Antonelli.

It would take some concessions, mainly from Sainz's side, to rejoin what was a fractious camp at times at Toro Rosso alongside Verstappen –

Sainz pushed to be released from the Red Bull fold in 2017. But he possesses a much better recent F1 success record than Ricciardo, given how close he's been to Leclerc in their time as Ferrari team-mates.

But the bigger threat to Ricciardo's dream of a "perfect" move back to Red Bull to end his F1 career there comes from the current turmoil at the top of that team.

Horner's love for Ricciardo is now very much required – judging by what explodes through in recent DTS scenes. But it was clear this was the case a year ago, when Ricciardo was Red Bull's third driver. Horner then spoke warmly of working with him to "get his mojo back".

But it's unlikely Red Bull will make any 2025 driver decisions before it even knows who its long-term team boss is going to be. At the time of writing, Horner's position remains precarious.

Whatever ultimately happens in this Netflix-worthy saga, Ricciardo understands the best way to secure that dream ending to his career is simply to shine right now where he is.

"At the start of a new season, it's not something on my mind in respect to where I currently am and a long season ahead," he said pre-season.

"I think the way I get back to the front of a grid is try and hustle this car as hard as possible and produce weekends like Mexico [2023, where he qualified fourth and battled well against much faster cars to finish seventh] and obviously do that more consistently. Then obviously see what happens. But it's also fully focused on where I'm at and trying to establish myself again.

"I feel like I started to do that a little bit last year coming back in. But I feel like there's a lot of races this year to try and do that and prove it to myself and then obviously others around me." 🏁

"I THINK THE WAY I GET BACK TO THE FRONT OF A GRID IS TRY AND HUSTLE THIS CAR AS HARD AS POSSIBLE AND PRODUCE WEEKENDS LIKE MEXICO [2023]"



Ricciardo with Pérez, the man he could replace at Red Bull, at pre-season testing (left and below)





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KEEP YOUR LID ON

Schuberth helmet technician **Sven Krieter** on the science of keeping F1 drivers' headgear in tip-top shape

INTERVIEW OLEG KARPOV

PICTURE SIMON GALLOWAY

"This is roughly what my workspace looks like during a race weekend. Of course, all the assembly work is done before the helmets are delivered to the track, and only the maintenance needs to be done on site. I don't have a workstation as such. Most of the time I work in the drivers' room – for example, this picture was taken in Bahrain in Nico Hülkenberg's room in the Haas garage. For the European races I can work in the hospitality area, too, as I don't need a lot of space.

"We have four drivers in Formula 1: Max Verstappen, Sergio Pérez, Daniel Ricciardo and Nico, and I work with all of them, as well as our F3 drivers, during the weekend."

1

"The most noticeable element here is the helmet dryer. Drivers sweat, as you can imagine, especially when it's warm and humid, so it's standard procedure to put the helmet on the dryer after each session. And of course, it's even more important when it rains – the helmet absorbs the water in the padding, so we need to dry it before it's used again. Driver comfort is one of the main priorities. And that's one of the reasons each driver usually has three helmets for each event. Sometimes, if they use a special livery, we only prepare two, otherwise the number of helmets per season would be too high. But it's always better to have a spare.



2

"Visors are one of the parts that may need to be changed during the weekend, sometimes urgently. For example, two years ago in Melbourne during qualifying we had a problem where the sun was quite low and the drivers were struggling to see, so they asked for darker visors or bigger visor strips.

"We have different colours and tinting of the visors. Drivers have personal preferences and they also like the colour of the visor to match the design of the helmet. Max, for example, uses red ones, Checo blue. And Daniel, for instance, because he changed the design of his helmet, went from a blue visor last year to a red one this year."



3

"This is a laminated pack of 10 tear-offs, the plastic films drivers can remove one by one during the race or a session to improve visibility. We usually put nine on the visor because the last one doesn't really fit on the tear-off button. So we leave the first one for notes, just so we know which visor it is. Of course, you can tell the difference without it, but it's a nice thing to have so you don't miss anything if you're in a hurry.

"The number of tear-offs drivers use really depends on a lot of factors. Some drivers simply use more than others. Checo, for example, always uses a lot – and I know that even if I gave him more

than nine, he'd still use them all. But it's also about where you are in the race. When you're leading, there's obviously less dirt, oil or dust coming your way. Max would usually come back and still have five or six tear-offs on. One time he didn't use any during the race and I even asked him after the finish, "Did you see anything?", because the helmet was pretty dirty, but he just said it didn't really bother him."

4

"It's a double-sided adhesive tape that I use to attach the spoiler you can see on the back of the

helmet, or the one on the chin. We don't use glue to attach accessories, and this tape is strong enough to withstand the load.



5

"The tool I use most is the blue 4mm Inbus in the middle, because that's what I use to change the visor. And you can also see the Torx screwdriver, which I use in case I need to change the lever on the chin. Then there's the screwdriver in a different size for the tear-off buttons – if they're too tight, I can loosen them a bit and vice versa. Of course, I also have a few other tools in a small handbag, but they're only used in special circumstances. I also need a pair of scissors to cut the tubes connected to the drinking bottle."

6

"Here are the tubes themselves. A long one that connects to the water bottle, and a shorter one that goes through the chin into the driver's mouth, plus a little 90-degree joint, and a couple of ordinary tie wraps to hold the tube in place. During practice sessions and qualifying drivers mostly don't have drink bottles – so I fit them in before each race, and, of course, they're single-use."

7

"Finally, a cleaning fluid. I use the one the teams use to clean the car. This is Formula 1 and there are no little things. After every session, we clean the helmets, because it's not only the driver's face, it's also a place for sponsor logos. Sometimes I use a glass cleaner, sometimes just water. I have a white wonder sponge that does a great job of keeping the helmet looking perfect."



MY HALF CENTURY

50 years ago **Tim Wright** decided that designing nuclear boilers and ejector seats wasn't for him – and went to work for race car manufacturer March Engineering. Back then, cars were drawn on paper and team hospitality amounted to a round of takeaway pizzas. Five decades later, having race-engineered Alain Prost, Gerhard Berger, Johnny Herbert and others in F1, plus a Le Mans 24 Hours victory for Peugeot, Tim reflects on how F1 has grown from a backwater sport into a multi-billion-pound enterprise...



When I look back over the years I've been involved in motor racing and in particular Formula 1, it's amazing to see the extent of the changes. Whether those were for good or bad, or somewhere between those points, depends on your perspective.

I stepped on to the employment ladder by way of a mechanical engineering apprenticeship with a company specialising in steam and nuclear boilers, a good grounding in practical engineering, but not what I wanted as a career. My training was to be a draughtsman, which helped me to hone my skills since I'd always enjoyed freehand drawing and sketching. While being able to use a computer, with programs that remove the need for a set square or an eraser, is now perhaps more of a prerequisite for design jobs, let's not forget

that Adrian Newey's office still contains a drawing board and a set of French curves.

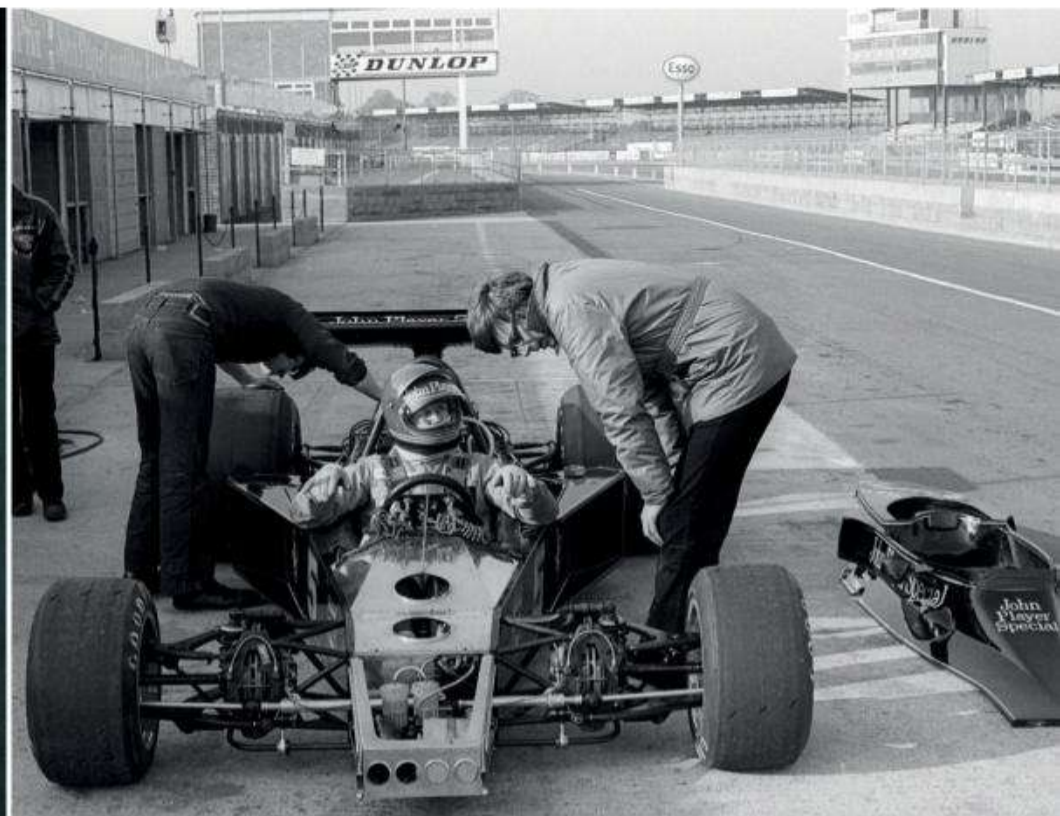
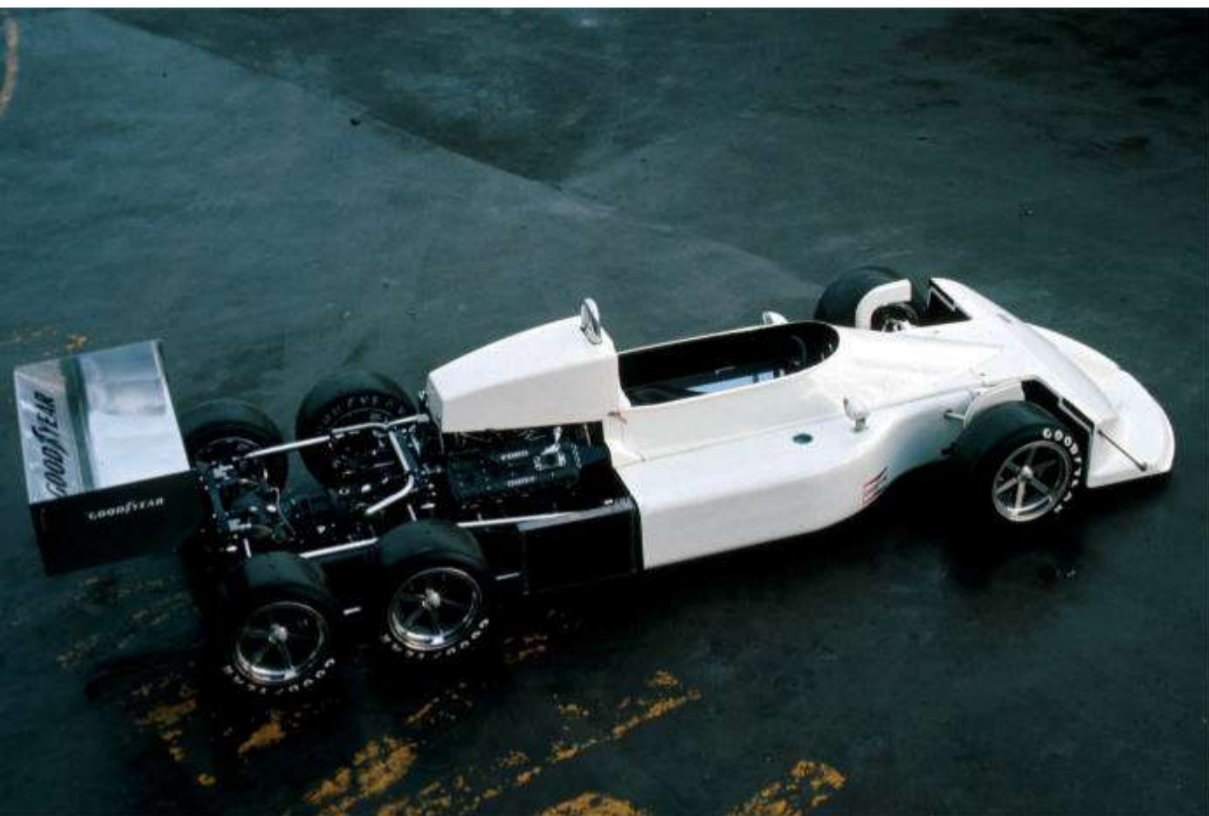
You now almost certainly need to have been to university and have several degrees to be accepted into a team, and universities such as Oxford Brookes and Loughborough offer specialised courses in automotive engineering which didn't exist when I was knocking on doors. In those less structured times there was more of an element of learning on the job.

Following my apprenticeship I worked for Martin Baker, the ejector seat company, which gave me an insight into fabricated aluminium structures. My motor racing career began in 1974 when I joined March Engineering in Bicester. At that time the company made chassis for many different categories including F1, F2, F3,

F4 Atlantic, F5000, and sportscars. Initially there was just Clive Lark and me in the drawing office, although March also used outside contractors for the more complex designs.

The cars evolved by way of adapting and scaling up or down the components, and it worked very well. While we worked to precise dimensions in the drawing office, fabricators would often improvise when translating those technical drawings into the finished product, for instance if supplied materials didn't quite fit. The hand-finished nature of the process meant no two cars of the same type were ever 100% identical down to the final millimetre.

Chassis back then were aluminium, pop- or hard-riveted together, attached to fabricated or cast aluminium bulkheads. Suspension was in



When Wright joined March one of the projects he worked on was the six-wheel 2-4-0. It was constructed after he left but never raced

heat-treated 4130 steel, and springs were always of the coiled variety. Anti-roll bars were bent tubular steel and fuel tanks were situated on each side of the driver in the sidepods, but at least they were equipped with aircraft-style connectors.

All cars had three pedals: the accelerator attached directly to the engine via a cable, the brake and clutch pedals via a conventional hydraulic circuit. Brakes were steel, either solid discs for the smaller categories or vented for the likes of F2 and F1. Callipers were off-the-shelf AP or Brembo. During my time in F1 brakes would become a science of their own – not just in terms of the materials used but also in the clever and elaborate aerodynamic sophistication of the ducting that feeds air to them.

A MATERIAL WORLD

When I moved on to McLaren in late 1976, Williams was starting to experiment with aluminium honeycomb panels for extra stiffness of the chassis. These used thin aluminium skins with an aluminium honeycomb core glued to them. To form shapes, the inner skin was cut, allowing the panel to be folded to the required angle and then sealed back again using thin aluminium angles. We didn't use this technology until we built the M28 (in 1979), but what we ended up with was a bit of a disaster because it was overweight, cumbersome, and far too flexible.

By then, Colin Chapman's Lotus was profiting by being the first to harness ground-effect aerodynamics in F1. The Lotus 78 and 79 cars essentially had a wing shape underneath each sidepod to create downforce. All the teams, of course, had to jump on this bandwagon – some with success and some not understanding the concept at all. Sliding skirts became the norm

to contain the airflow beneath the car, and the sales of ceramic soared since it was considered the best 'rubbing medium' to minimise friction at the point the skirts met the track surface. Circuit owners took a dim view of this, owing to the damage it caused to their precious asphalt.

As downforce generated by the underfloor grew, so too did the phenomenon of 'porpoising'. A young Adrian Newey was beginning his F1 career at Fittipaldi at this time so it's no surprise that, in the modern ground-effect era, Red Bull should have mitigated the issue so quickly. Among the other limiting factors – and one which Lotus ran into – was torsional rigidity since the chassis structure had to be as narrow as possible to maximise the space available for underbody venturi. This was among the many issues which made the M28 so problematic.

A solution to this came in the next big step forward through material science, when John Barnard brought carbonfibre to everyone's attention by asking Hercules, an American rocket company, to use it to produce a complete chassis. John was working on the concept when he came to McLaren, where – among many other procedural changes he implemented – he began to insist on the works of the drawing office being translated directly into materials without any 'interpretation' by the fabricators. It was another step on the road to ensuring consistency of manufacture and fewer variances between cars.

Adopting carbonfibre meant learning new design and construction methodologies because this wasn't a straight swap of one material for a

The Lotus 77 in 1975. Chassis were, at this time, aluminium, pop- or hard-riveted together and attached to fabricated/cast aluminium bulkheads

stronger, lighter one. Where metal was rolled, beaten, cut, formed and riveted, composites were moulded by layering the woven carbonfibre sheets (with resin) on an internal 'buck', then baking the assembly in an autoclave – a high-temperature oven where the component is under pressure. Strength and rigidity was achieved through the specifics of the layering process.

Of course, as soon as we found how light and stiff carbonfibre was, we started using it for many

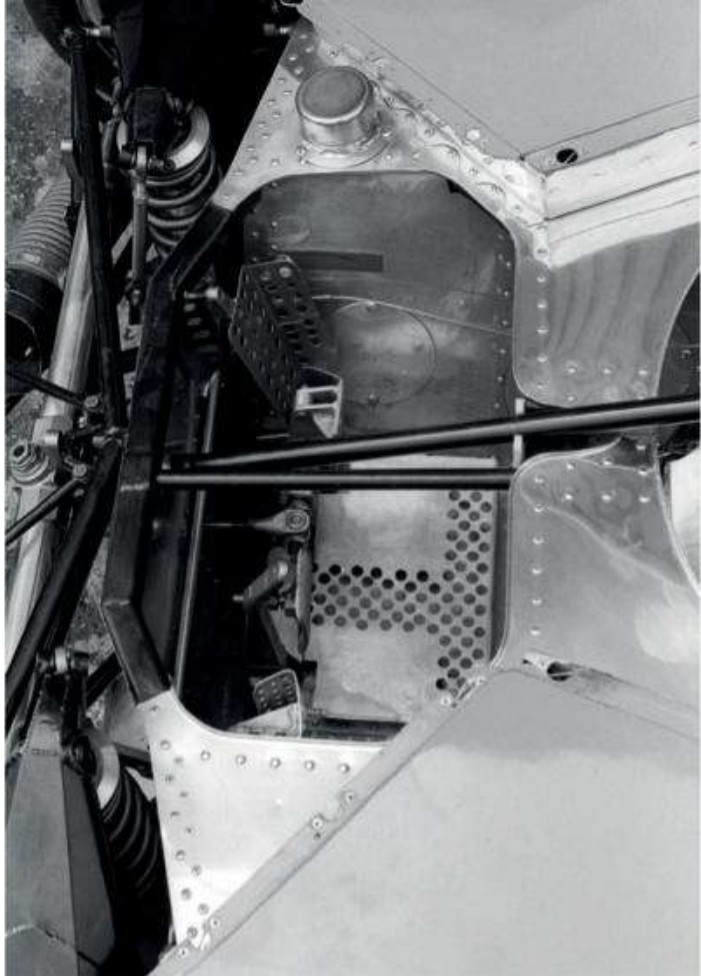
other components and a new department was created within the factory to cope with all the work.

Teams became much more introverted during this time and the number of employees grew by the hundreds. Drawing boards gave way to computers and monitors as draughtsmen retrained to use CAD (Computer Aided Design) stations. Machine shops invested in CNC machines to link in with the design office CAD systems, therefore

doing away with paperwork and drawings and continuing the process of ensuring consistency and repeatability in construction. For speed and to maintain secrecy as aerodynamics became something of an arms race, teams brought production in house – with their own autoclaves – rather than contracting outside companies such as Maurice Gomm and Specialised Mouldings.

Further down the road, rapid-prototyping and 3D printing – again linked to CAD – would replace skilled metal and wood workers to

THESE ALL USED SCALE MODELS BUT, BY THE 1990s, BIG-BUDGET TEAMS WERE BUILDING IN-HOUSE WINDTUNNELS WHICH COULD HOUSE A COMPLETE CAR. SOME EVEN HAD MORE THAN ONE TUNNEL



When Wright first started in F1 all cars had the three-pedal set-up, with the accelerator attached to the engine via a cable



Brakes were steel for a long time, with off-the-shelf callipers, but this area of technology saw a huge change during Wright's time in F1



The M28 was an attempt by McLaren to use some new technology but Wright admits it was a car that had a lot of problems

produce experimental parts for the full-size car and scale models for the windtunnel. Speeding this process enabled much more research to be completed and the aerodynamics of the cars became more intricately detailed and complex.

To facilitate this, teams entered a phase of massive investment in windtunnel technology. In the 1970s a lot of aerodynamic design had been intuitive, and much of the practical research was done by gluing wool tufts to the car and then photographing it travelling at speed from another vehicle. Lotus and then Williams began to use the rolling-road tunnel at Imperial College to develop their ground-effect cars and, under Barnard, McLaren worked with the National Physical Laboratory in Teddington. These all used scale models but, by the 1990s, big-budget teams were building in-house windtunnels which could house a complete car. Some even had more than one tunnel, offsetting the costs in some circumstances by renting time to other bodies – such as the British Olympic cycling team, which developed streamlined wheels, helmets and clothing as well as optimising the rider's position on the bike.

DEALING WITH THE CONSEQUENCES

Along with Formula 1's massive growth in terms of global reach, audience interest and commercial value has come greater scrutiny of the negatives. Driver and public safety has been the biggest change in the sport during my 50 years; sadly I've been witness to some bad accidents which have claimed lives or resulted in serious injuries.

In his first stint at McLaren, before I became his race engineer, Alain Prost had two big crashes which put him in hospital. In South Africa in



Tim had two spells at McLaren during his 50 years in motorsport. During the second one he became Alain Prost's race engineer

1980 a suspension link failed on his M29 during practice and he hit a wall, breaking a bone in his wrist. At the final round, in Watkins Glen, another breakage caused a huge accident that left him unfit to race and his M30 in pieces.

Changes in the construction of cars has helped enormously, in that chassis have become safety cells rather than mobile coffins. In 1988, moving the driver's feet behind the front axle line, plus having a crushable nose box structure, reduced the likelihood of damage to feet and legs in a head-on accident. But safety is a process of continuous evolution and vigilance as new scenarios expose unanticipated risks.

In 1994 I was engineering Karl Wendlinger at Sauber. At the Monaco GP, just a couple of weeks

The secret of timing

We can now sit back at home and look at granular timing data from each sector of the track on F1's app. Underpinning this is a major infrastructure investment, with miles of cables, timing loops set into the surface of the track, and cars equipped with transponders and GPS sensors.

Timing wasn't always a data-rich, centralised resource. Back at the beginning of my career, March took me along to the 1976 British GP at Brands Hatch. I was a junior member and, as a spare pair of legs, they had to find me something to do. Timing of the cars was done officially but there were no splits or corresponding speeds. I was tasked with taking the speed trap to the Hawthorn Straight, the fastest part of the circuit.

I had no instructions for how the apparatus worked or where to site it but I struggled with the box around the perimeter until I reached Hawthorn Straight. By then practice had started and the marshal rightly wouldn't let me sprint across the track to set up the mirror. It turned out that the battery for the device hadn't been charged anyway.



after the awful weekend at Imola that claimed the lives of Roland Ratzenburger and Ayrton Senna, he too had a bad accident, spinning at the exit of the tunnel and hitting an unprotected barrier broadside. It put him in a coma from which, fortunately, he recovered. These incidents understandably led to questions being asked about F1's viability and, as a result, the FIA introduced lateral head protection for drivers as part of a package of changes to improve safety and control car performance.

Compare an image of a 1980s F1 car with one from the present day and among the most obvious differences

is how exposed the drivers were. Yes, spectators had a better view of their arms and shoulders working the steering wheel, but the drivers had very little protection. While there has been a degree of resistance to cockpit safety measures, particularly the halo, on grounds of visibility and the effect on sight lines, the FIA has pushed the measures through and events have proved their value.

The expanding number of races on the calendar has brought the mental health of team members onto the agenda. 16 races was commonplace for many years, although at times we did just as many tests in between the races. In most cases, teams had a separate race and a test squad, each with their own group of engineers and mechanics who split the responsibility. Though in-season

The Lotus 79 was the first F1 car to really harness the benefits of ground-effect aerodynamics, winning both titles in 1978

COMPARE AN IMAGE OF A 1980s F1 CAR WITH ONE FROM THE PRESENT DAY AND AMONG THE MOST OBVIOUS DIFFERENCES IS HOW EXPOSED THE DRIVERS WERE

testing is now a rarity, there are now 24 races per season, some of which involve three busy weekends in a row in different countries. This has put huge stress on the mechanics and support teams, especially those who look after the infrastructure of the pits and motorhomes. It's also increased the number of trucks the teams need and, with that, drivers and crew and those who juggle logistical complexities.

They are at least well looked-after on-site. When we were testing back in the 1980s, we had one truck which doubled as a transporter and office – and, often, the staff canteen as well. Then

at a test in Imola, the Williams team turned up with a small motorhome and not only were the mechanics treated to a meal cooked for them, they had tables and chairs set outside the motorhome. Luxury! Our truckies were immediately tasked with going to the local DIY store to buy plastic tables and chairs – but, even though we could

sit down, we were still eating takeaway pizzas...

This started a trend. At first Marlboro supplied McLaren with a motorhome and Bob and Shaun McMurray, who ran it and drove it to whichever circuit the team needed it. Then as the motorhome got bigger and covered both race and test teams, we gained a bevy of catering people, led by Sally Wing, who looked after us all. Now every team has a dedicated space in the paddock where both staff and guests can relax and eat.

None of this would have come about without the influx of sponsors who have seen F1 as an opportunity to attract attention on the world stage. And the whole reason for this popularity is that Bernie Ecclestone, aided by Max Mosley (co-

TIM WRIGHT

Tim began his eclectic racing career in 1974 as a draughtsman at March Engineering before he moved to McLaren. After spells at Fittipaldi and Spirit he returned to McLaren, where he became Alain Prost's race engineer in 1985. He also worked with Stefan Johansson, Gerhard Berger and Ayrton Senna before being recruited by Keke Rosberg to join Peugeot's sportscar campaign in 1990. Returning to F1 in 1993 he enjoyed spells at Jordan, Sauber and Benetton-Renault before going freelance in 2009. He is the resident technical expert at GP Racing's sister magazine Autosport.



Wright was engineering Karl Wendlinger when the Austrian had his big crash at Monaco in 1994. Thankfully Wendlinger recovered from it

founder of March and lawyer by trade) saw the potential of selling the show to television – and sponsors who could display their signage around each circuit. Bernie might have been 'just' a team owner at the time I started in racing but he had his eyes on bigger things. Race promoters thought TV would dilute ticket sales but Bernie and Max drove through that resistance.

F1 can now be seen in practically every country in the world and few promoters have problems selling tickets. The sport has gone from strength to strength – to the extent that even America, which likes to think it has the monopoly on world series, is now being seduced because of all the big manufacturers, companies and names involved...





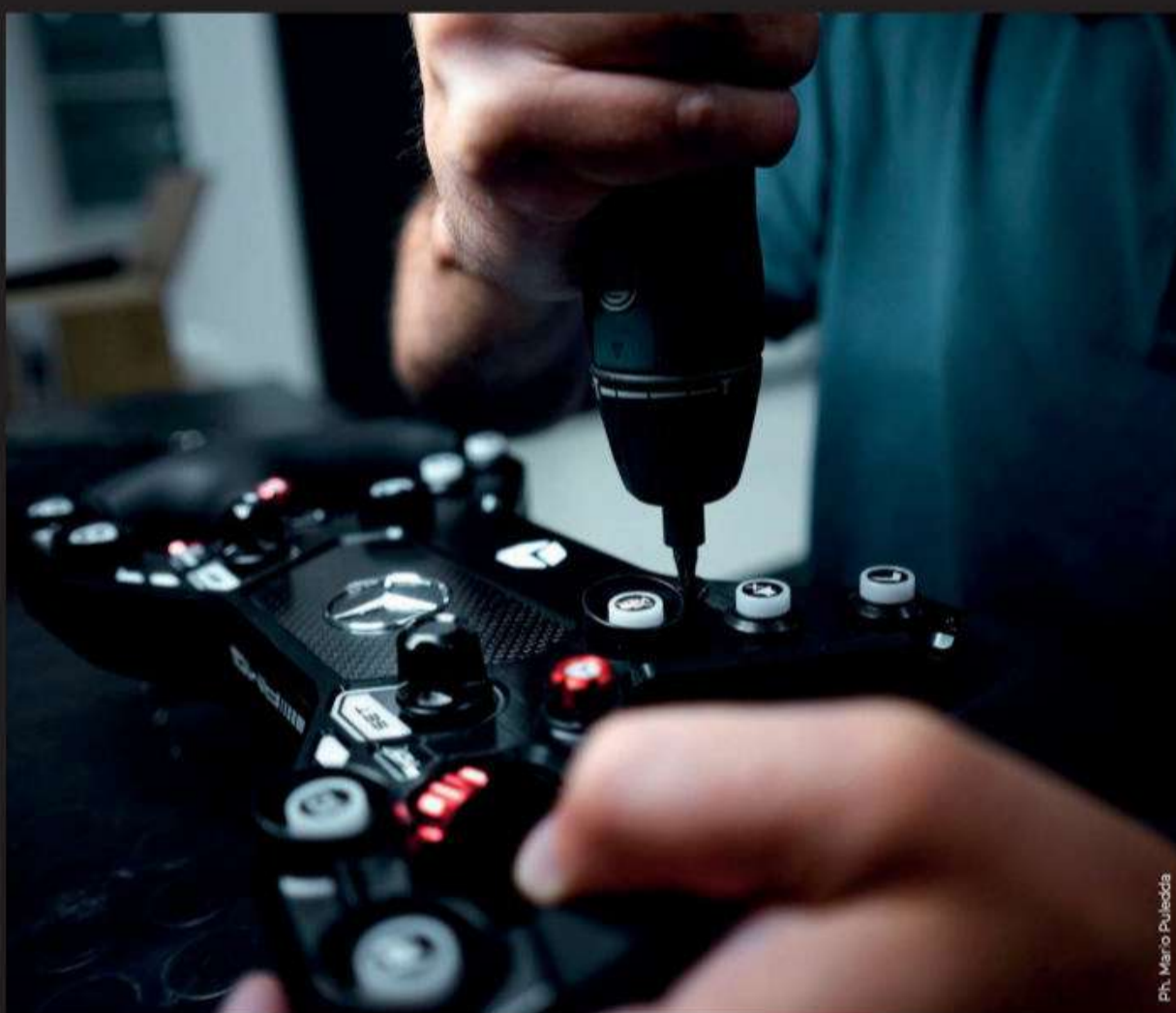
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MAURICE HAMILTON'S ALTERNATIVE VIEW

Strange as it may seem, a leading British driver heading to Ferrari hasn't always been deemed front-page news material...

PICTURES  **motorsport**
IMAGES

IT SAYS A LOT ABOUT Lewis Hamilton's forthcoming move to Ferrari that BBC TV felt it worthy of inclusion in the Six O'Clock News. This was welcome after grim bulletins from war-torn corners of the world, followed by the daily grind of British politicians sniping at each other inbetween bouts of self-interest and crass decision-making (all which FOM appears to have used as a role model; we'll get onto the Andretti fiasco in a minute).

As the BBC sports presenter spoke about F1, you had to wonder whether Hamilton or Ferrari – or a combination of both – had been the hook for this story. With the greatest of respect to Sir Lewis, it probably had more to do with a British driver switching to an Italian motor racing icon. Even in the unlikely event of Hamilton having switched to Red Bull – and allowing for the controversies attached to the world champion team – it's difficult to see a short hop from Brackley to Milton Keynes taking priority over the latest news on test cricket, six nations rugby and Gary Lineker's most recent pronouncement on potato crisps and small boats.

For our colleagues at *Autosport*, Lewis was mana from heaven during a quiet period. Six pages were devoted to the news, plus a column by Alex Kalinauckas, comment in the editorial and, of course, a front-cover splash. It wasn't always like this in 'Britain's Best Motorsport Weekly'.

Mike Hawthorn was the first English driver to sign a contract with Ferrari. After just one season of F1 in 1952, he would be joining Alberto Ascari and Giuseppe Farina (world champions both). It doesn't get more 'Hold The Front Page!' than that.



At Ferrari in 2025 Hamilton will be reunited with Ferrari team principal Frédéric Vasseur, the man he drove for successfully in Formula 3 and GP2 in 2005 and 2006 respectively



Mike Hawthorn was the first British driver to actually sign for Ferrari and also the first to win a race for the Scuderia. In his second stint with the team he also claimed the world championship in 1958



On a par with Hamilton, Mansell's move to Ferrari was huge news. The partnership got off to a fantastic start when Nigel won his first GP in red, the 1989 Brazilian GP

True, *Autosport* had been on the case a few weeks before. By that I mean Gregor Grant, the editor and chief socialite, had picked up word during one of his visits to the Steering Wheel Club in London's Curzon Street. In its day, 'The Wheel' was Facebook, Instagram, Z, and whatever rumour-breeding platform you care to mention, rolled into one smoke-filled room in Mayfair. The difference was the only sense of bitter to be found in this jolly centre of gossip was the stuff enthusiastically consumed in tankards at the bar.

In the 14 November 1952 issue of *Autosport*, the following item appeared in 'Pit and Paddock': "Enzo Ferrari would like to have Mike Hawthorn as a member of Scuderia Ferrari for 1953 grands prix. Negotiations are proceeding at the moment."

THERE WOULD BE NOTHING FURTHER ON HAWTHORN UNTIL A PICTURE THREE WEEKS LATER CAPTIONED: "FROM FARNHAM TO FERRARI"

And that was it. Far from being headline news, this was placed down the page, along with a list of French competitors due to take part in Monte Carlo Rally. Among the entry would be a certain Marcel Becquart at the wheel of a Jowett.

There would be nothing further on Hawthorn until a picture three weeks later captioned: "From Farnham to Ferrari. First published picture of Mike Hawthorn in a Formula 2 Ferrari, taken at the concern's Modena works. The brilliant young British driver has officially signed up with Enzo Ferrari to drive his cars during the 1953 season."

That done, 'Pit and Paddock' moved on to the serious business of Johnny Goldschmidt of Performance Cars having married Hilda Lusty in St Mary's Church, Stamford Brook. M. Becquart then got another mention thanks to Jowett (the British car company) holding a luncheon party in his honour at Browns Hotel, London. (Sorry: I've absolutely no idea who these people were. The only certainty is that *Autosport's* Editor would have been a jovial guest on both occasions – arguably, whether the hosts liked it or not.) But there would not be a single line on Hawthorn for the rest of the year. Not one.

News values had gone up a few gears by the time Nigel Mansell took himself from Williams to Ferrari. "MANSELL SHOCK" dominated the front cover of *Autosport's* 7 July 1988 issue. There may have been no wedding or social notices inside but neither, apart from a half-page news item, was there further analysis of any description.

Mansell kept a low profile for the rest of the season, largely through a bout of chicken pox and his Williams-Judd retiring often. Nigel

even missed his first test with Ferrari at Jerez in December, preferring to play in the Australian Open golf tournament instead; a remarkably casual approach that did not go down well with Ferrari's technical director, John Barnard.

Mansell's popularity appeared to have slipped further when his F1 driver mates managed to find an excuse not to appear on *This Is Your Life*, the celebrated TV show dedicated in this instance to the life of Nigel. When he then invited a handful of British newspaper F1 writers to his Ferrari dealership, I was not alone in travelling to Dorset certain that this would be a bollocking about the past rather than a briefing about the future.

As it turned out, Nigel could not have been more accommodating. He admitted previous failures, said he wished to wipe the slate clean, and asked what we would like to know. The worthy stories created that day were as timely for us in the off-season as *Autosport's* recent coverage of Ferrari's latest Brit.

But not half as welcome, I suspect, as the diversion provided by Lewis when taking the media's attention away from FOM's gauche handling of the Andretti application to join their cartel. Even by F1's previous standards, it's rare to come across such an inappropriate, avaricious and arrogant statement.

Rather than show Andretti the door, whoever is in charge at FOM ought to sack the overpaid PR advisor who believed such a testimony of twaddle would be acceptable. It would have been enough, back in the day, for stiff brandies all round in the Steering Wheel Club and the conceited cad to be booted down the stairs and into Curzon Street.

▼ Nigel Mansell's switch to Ferrari from Williams for 1989 was a big shock at the time. He won his first race for the team in Brazil, and cut his hand on the trophy

BRITS AT FERRARI

Lewis Hamilton's surprise move to the Scuderia for 2025 means he will join a very exclusive club





◀ After making his F1 debut with Lotus in 1958, Cliff Allison joined Ferrari for 1959, starting five GPs. Allison then finished second in the opening race of 1960, in Argentina, before a heavy crash in practice for the Monaco GP ended his Ferrari career prematurely

▼ Derek Bell was signed by Ferrari for F2 in 1968, but was drafted in for the Oulton Park Gold Cup, a non-championship F1 race. Two GPs followed, in Italy and the US, but he retired in both. He never drove for Ferrari in a GP again, but did make seven further starts with other teams



◀ Tony Brooks raced for Ferrari in 1959, though he took part in the British GP in a Vanwall because strikes in Italy kept all the Ferrari 246s at home. From his seven races in red Brooks won twice, finished on the podium on two more occasions, and narrowly lost out in the title battle at the final race

▼ Although he raced under an Irish licence, Eddie Irvine was born in Newtownards in Northern Ireland. Irvine, seen here with Ross Brawn, the ultra-successful British technical director at the Scuderia for 10 seasons, won four times in a Ferrari and was second in the 1999 world championship





When Nigel Mansell moved to Ferrari for 1990 the response from the tifosi was extraordinary. Mansell was the last driver Enzo Ferrari signed before he died and 'Nige' quickly endeared himself to the fans, earning the nickname 'Il Leone' (the lion). The job of Pope, however, might have been a step too far



Ollie Bearman was on pole for the F2 feature race in Saudi Arabia until Carlos Sainz was forced out of the GP with appendicitis. Ferrari's reserve driver was thrown in at the deep end for FP3. The 18-year-old from Chelmsford qualified 11th, missing out on Q3 by 0.07s, before finishing an amazing seventh



It couldn't be more British as Mike Parkes has a cup of tea. He just happens to be sat on his Ferrari 312 at Monza in 1966. Parkes, a Scuderia regular in sportscars, was John Surtees's replacement and managed two second places in F1. Parkes returned to sportscars after an accident at Spa in 1967





▲
Not only was Mike Hawthorn the first British driver to win a world championship race, the 1953 French GP, but he did so in a Ferrari. In the first of two spells at the Scuderia he also triumphed in the 1954 Spanish GP (pictured) before leaving the team at the end of a disappointing 1955 season

▼
In his second season at Ferrari John Surtees was on the podium in every race he finished, winning twice. Surtees clinched the championship at the final race in Mexico, in a blue and white North American Racing Team-entered 158. He would eventually quit Ferrari in 1966 over a lack of support at Le Mans





Jonathan Williams was a Ferrari sportscar driver drafted to the F1 team for the last race of 1967, the Mexican GP. Williams finished eighth but was dropped by Ferrari for 1968 and, after a potential Abarth project failed to materialise, never raced in F1 again



In 1956, his first season with Ferrari, Peter Collins won twice and was on the verge of becoming Britain's first world champion. Then, in a selfless act at the Italian GP, he handed his Lancia-Ferrari D50 over to team leader Juan Manuel Fangio, who went on to win the title



Peter Whitehead was a big name in pre-WWII motor racing and then became a pilot during the war itself. Post-war he was one of the first people Enzo Ferrari sold a car to, a 125. However, he was entered by the factory team for the 1950 Swiss GP, only to fail to qualify





▲
Mike Hawthorn's second spell as a Ferrari driver started in 1957. He managed a couple of podiums that season but in 1958 his weapon was the superb 246. He only won once, in France, but six other podiums propelled him to become Britain's first world champion



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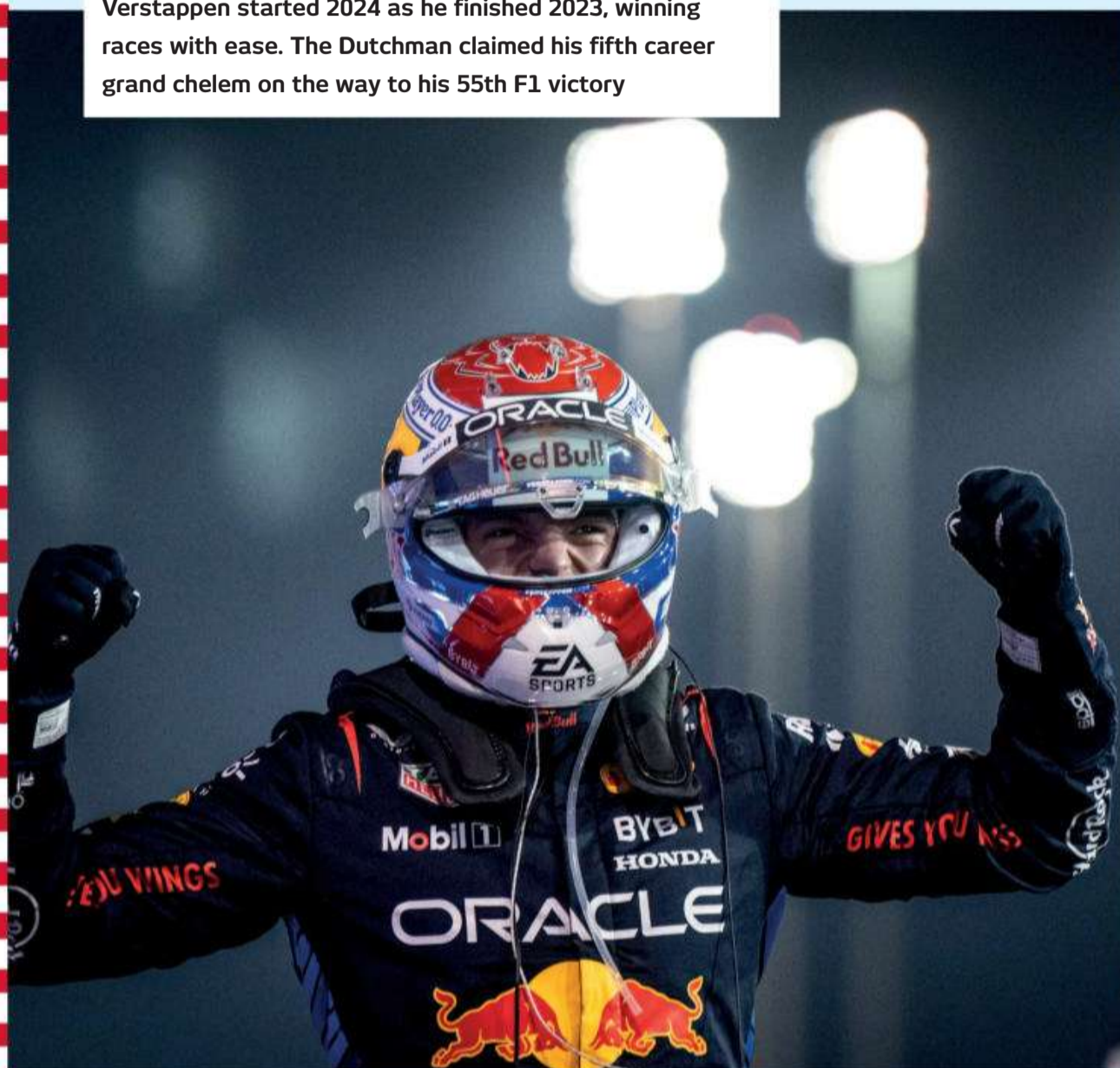
RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 1

THE BAHRAIN GP
IN 5 KEY MOMENTS

REPORT BY JAMES ROBERTS

Verstappen started 2024 as he finished 2023, winning races with ease. The Dutchman claimed his fifth career grand chelem on the way to his 55th F1 victory



On track Bahrain couldn't have gone better for Red Bull with Pérez coming home second



Off-track it was a difficult time for team principal Horner, who was joined by his wife Geri on raceday

PICTURES: MARK SUTTON; ANDY HONE; SIMON GALLOWAY

1 Taking the bull by the horn(er)

F1 statistician Jacques Deschenaux's annual *Grand Prix Guide* lists 68 occasions since 1950 where a driver has achieved a *grand chelem* or, in other words, pole position, fastest lap, victory and every lap of the race led. Max Verstappen's quest to win a fourth world drivers' title started in earnest when he achieved the sport's 69th grand slam at the season opener in Bahrain.

For the record, this was the fifth time Max has recorded a perfect race. Only Lewis Hamilton (six times) and Jim Clark (eight times) have more.

As Verstappen's team-mate Sergio Pérez finished second – albeit 22.4s in arrears – Red Bull's 29th one-two proceeded like clockwork on the track. Off it there was a very different story, to which we will return presently.

While the first race of 2024 felt like a continuation of last year, there were a few mitigating circumstances that gave the chasing

pack reasons to hope it won't be another complete Red Bull whitewash. The RB20's predecessor was gentle on its tyres and the new car clearly enjoys the same characteristics. As a result the Red Bull pair were the only frontrunners to switch to the soft tyre for the final stint of the race. Everyone else ran compounds two steps harder.

And since the track hasn't been resurfaced in its 20 years of use, its coarse top layer is one of the roughest of the season – leading to significant tyre degradation, especially on the rears. Ferrari, closest of the chasing pack, finished nearer Red Bull than it did last year and, on balance, suffered less with technical dramas despite obvious braking issues.

But the Sakhir weekend won't be remembered for Verstappen's 55th (and Red Bull's 114th) win; so uneventful was the race that it failed to knock the saga surrounding team principal Christian Horner off the top of the agenda. Following the growing trend of illiterate marketing types to leave innocent adjectives dangling, banners inside the F1 paddock read, 'A season of extraordinary starts here'. As political strife mounts between Milton Keynes and Fuschl am See, who knows when it will end?

While Daniel Ricciardo unexpectedly topped FP1 for the rebranded RB team, none of the top teams had done soft-tyre runs; likewise when Lewis Hamilton went fastest in FP2, GPS data suggested Red Bull had been running a conservative engine mode. Not that many present were studying data, for a tranche of confidential documents pertaining to a complaint against Horner by a female colleague had arrived in the inboxes of over 100 journalists and F1 stakeholders (including the FIA president and all team principals) that afternoon.

Having qualified on pole, Max ran unchallenged to the chequered flag, pulling away from a chasing pack initially led by Ferrari's Charles Leclerc. It was notable that in the final third of the race Verstappen almost melted into the scenery, running in clear air and suffering no car problems at all – nor any friction with his race engineer over lap times. Last year Max and Gianpiero Lambiase entered into a somewhat tetchy exchange over the radio about lap times and their effects on tyre temperature. Here the only grenades went off after the race when Max's father Jos was quoted in a Dutch and UK newspaper as saying Red Bull will "explode" if

Horner stays in his position.

As we've analysed in this month's Insider (see p16), a power struggle is playing out in the corridors of power at Red Bull. The long-term impact these divisions will have on Red Bull's grip at the top of the grid are yet to be seen. For now, Max gave the perfect riposte to the drama unfolding around him.

"Today went better than expected," he said post-race. "I'm happy to kickstart the season like this, but also as a team, to have a one-two is fantastic. Everything just worked really well, but I don't expect this to happen in every single grand prix."

Of Pérez, who only qualified fifth after an error in qualifying, Helmut Marko was able to find the perfect backhanded compliment: "Not to be destroyed by Max is already a big achievement."

2 Ferrari's brake issues blunt the impact of improvements

In outright pace, Charles Leclerc would have taken pole position in Bahrain if he'd repeated his Q2 time in the final session – so there is optimism in Maranello for the year ahead. But come the race, Leclerc's charge unravelled owing to an issue with his brakes. On numerous occasions the Ferrari ploughed wide at Turns 1 and 10, front tyres wreathed in tyre smoke. Leclerc later revealed that



Sainz passed Leclerc on lap 11 for what was then second (below) and the Spaniard (above) was happy with the final podium spot

data indicated a 100C difference in temperature between the front brakes.

One of the solutions to front-locking is to move brake balance rearwards but putting more energy through the rear axle destabilises the car and exacerbates tyre wear. Despite testing and two days of practice in Sakhir, the 57-lap race was the first time the full field had run closely together. As a result overheating was more of a factor than predicted, even though ambient temperatures were low. Brake duct sizes are always a trade-off between optimal cooling and aerodynamic efficiency – and it's believed Ferrari got that balance wrong by being too marginal on duct size.

Third-placed Carlos Sainz revealed his brake pedal went "long" a few times, but he was in a better position than his team-mate and passed him on the exit of Turn 1 on lap 11. Despite falling behind Leclerc again in the pits sequence – and it was puzzling that Ferrari should allow the car suffering most with brake problems to undercut the other – Sainz had the pace to end the race ahead.

"At the first stint and the beginning of the second stint, whenever we were in traffic, we were having a lot of brake vibrations, so it was always a balancing act between going for it to try and get rid of the dirty air and overtake people, or thinking about saving my brakes because they're going to fail,"

said Carlos. "I started saving them by moving a bit on the straight to cool the side that was getting hotter and the vibration started to get better. And then I could start to move forward."

At the flag Sainz was less than three seconds behind the Red Bull of Pérez, but despite the tyre offset admitted he wouldn't have been able to challenge for second place.

"When I knew Red Bull had a new soft for the last stint, it's not like I went, 'OK, this is my chance'. I've seen the long runs they did on the soft tyre in testing, and you could see they had the same deg on the soft that everyone had on the hard. So I wasn't getting too excited."

Nevertheless, another positive takeaway for Ferrari is the SF-24 seems gentler on its rear tyres than its predecessor, a key design priority.

"To come to the most rear-limited track of the season, the highest degradation, and do an overtaking, attacking race is a relief," said Sainz.

3 RB also needs grievance procedures

As all 20 finishers admired the pyrotechnics over the Bahrain International Circuit during their cool-down lap, one driver was clearly still fired up. For the newly named Visa Cash App RB F1 Team (inducted into the GP Racing style guide as RB for brevity's sake) there were fireworks on track. ▶





FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 1

Clearly aggrieved with his team-mate, Yuki Tsunoda came barrelling down the inside of Dan Ricciardo at the Turn 8 hairpin – after the chequered flag. He locked up, ran wide, then rotated his RB and blasted past the Australian once more on the exit. “What the fuck, he’s a fucking helmet,” exclaimed the usually cool Ricciardo.

Tsunoda’s grievance emerged after he was given a team order to relinquish his position to Ricciardo in the latter stages, while running in 13th on the hard Pirellis just behind Kevin Magnussen’s Haas. While Tsunoda was on the same soft-hard-hard strategy as the majority of the grid, Ricciardo had a set of softs available for the final stint and, having swapped to them, caught his team-mate quickly.

Thus came the request every driver dreads to hear: “We’ll do the swap this lap...” Tsunoda responded with fury and dragged his heels about moving over, so the swap didn’t take place until just five laps remained. Ricciardo gave it his all to overtake K-Mag but couldn’t manage it and stayed 13th, with a frustrated Tsunoda one place behind.

“We talked about it before the race and starting on the [used] soft meant I was going to finish the race on a new soft and have an attacking last stint,” explained Ricciardo. “I know when you’re in the race you are a little bit more emotional but this call came as no surprise.

“We weren’t in a points position so there was really nothing to lose, but I think the call was already one lap too late and then he has reacted too late.”

New team CEO Peter Bayer admitted the team had missed an opportunity when the delayed Lance Stroll pitted from one position ahead of Tsunoda at the end of lap 27. When Yuki pitted



Tsunoda was more than a little unhappy at being forced to hand 13th back to RB team-mate Ricciardo towards the end of the race

seven laps later he emerged four places behind Stroll, who finished 10th.

“It would have avoided first of all, the fight with Magnussen, and it would have avoided the mess between the drivers,” Bayer said.



4 Where are Alpine’s stars?

Late on Saturday, as the teams were packing ahead of the short hop to Jeddah a week later, a rumour spread around the paddock. It was suggested Alpine’s technical director Matt Harman and head of aero Dirk de Beer had resigned. Less than 48 hours later the team reversed its initial “no comment” and confirmed this was the case.

Esteban Ocon finished a lap down in 17th, one place ahead of team-mate Pierre Gasly. The disappointing result, owing to a combination of lack of downforce, underpowered engine and overweight chassis, has left Alpine with a steep development gradient to conquer.

Ocon outqualified Gasly when Pierre failed to prepare his tyres for his Q1 push lap. Having made the better start from the back of the grid, Gasly got baulked by the crush at Turn 1 at the start as Nico Hülkenberg tapped Lance Stroll into a spin. Ocon – perhaps as a result of all that training with alien

PICTURES: ZAK MAUGER; SAM BLOXHAM; STEVE ETHERINGTON; SIMON GALLOWAY

Alpine had a shocking Bahrain GP, its two cars filling the back row of the grid before finishing a distant 17th and 18th



As the rest of the field sped through the opening corners on the first lap, Stroll was nudged into a spin by Hülkenberg



spaceships (see p32) did a better job of threading through. Pace-wise neither car offered much and only finished ahead of cars seriously delayed.

"We're aware of the limitations, everyone wants to find solutions," said Gasly. "I see the mentality is the right one inside the team, but you don't find solutions overnight on these cars, you need more than that and that's why we will have to be patient.

"I think about the 1500 people [in the team] that's behind me and no-one's enjoying it. No-one's doing racing to be P18 and P17."

Twelve months ago McLaren was effectively last in Bahrain but was a regular podium finisher by mid-season. Alpine has acted quickly to try and repeat that feat. Whether it can is another matter.

5 A trouble free race – for most

The Bahrain GP was surprisingly free of incident and on-track drama, not the thrilling spectacle we've often enjoyed in the past (particularly since



Bottas was caught up in the first-corner tangle and then suffered a cross-threaded wheelnut at the second of his pitstops

the swap to the night-race format). The nature of the track – and the relative ease of overtaking – allowed the teams to finish largely in their natural order of pace; those who qualified out-of-position didn't have much of a fight ahead of them.

While mechanical reliability was mostly sound across the grid and few drivers made serious errors, three individuals were still unfortunate at Turn 1 which scuppered their opening race of the season. Off the line, Aston Martin's Lance Stroll got off to a much better start than Nico Hülkenberg, who had qualified his Haas ahead. As the field compressed into Turn 1, the Hülk was a little late on the brakes and nudged Stroll into a spin. Valtteri Bottas, behind, had to check up suddenly and deranged a wing tip on his luminous green Stake

Hülkenberg pitted for a new front wing at the end of the first lap, while Bottas suffered a cross-threaded wheelnut on his front-left during his second stop. He was stationary for 52 seconds while another wheel was sought. Stroll recovered to take the final points position in tenth, while Bottas finished second from last.

The only other brief yellow flag during the 57-lap encounter came when Williams' Logan Sargeant speared into the run-off at Turn 4 on lap 10. An electronic glitch on his steering wheel had reset the brake balance all the way to the front axle.

RESULTS ROUND 1

SAKHIR / 02.03.24 / 57 LAPS



1st	Max Verstappen	Red Bull	1h31m44.742s
2nd	Sergio Pérez	Red Bull	+22.457s
3rd	Carlos Sainz	Ferrari	+25.110s
4th	Charles Leclerc	Ferrari	+39.669s
5th	George Russell	Mercedes	+46.788s
6th	Lando Norris	McLaren	+48.458s
7th	Lewis Hamilton	Mercedes	+50.324s
8th	Oscar Piastri	McLaren	+56.082s
9th	Fernando Alonso	Aston Martin	+74.887s
10th	Lance Stroll	Aston Martin	+93.216s
11th	Zhou Guanyu	Stake	+1 lap
12th	Kevin Magnussen	Haas	+1 lap
13th	Daniel Ricciardo	RB	+1 lap
14th	Yuki Tsunoda	RB	+1 lap
15th	Alex Albon	Williams	+1 lap
16th	Nico Hülkenberg	Haas	+1 lap
17th	Esteban Ocon	Alpine	+1 lap
18th	Pierre Gasly	Alpine	+1 lap
19th	Valtteri Bottas	Stake	+1 lap
20th	Logan Sargeant	Williams	+2 laps

Retirements

Fastest lap

Max Verstappen 1m26.993s on lap 45

TYRE COMPOUNDS USED



CLIMATE



AIR TEMP

19°C

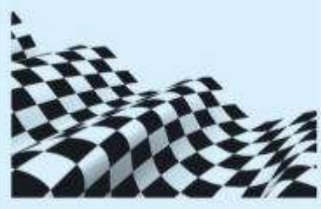
TRACK TEMP

24°C

DRIVERS' STANDINGS

1 Verstappen	26pts	11 Guanyu	0pts
2 Pérez	18pts	12 Magnussen	0pts
3 Sainz	15pts	13 Ricciardo	0pts
4 Leclerc	12pts	14 Tsunoda	0pts
5 Russell	10pts	15 Albon	0pts
6 Norris	8pts	16 Hülkenberg	0pts
7 Hamilton	6pts	17 Ocon	0pts
8 Piastri	4pts	18 Gasly	0pts
9 Alonso	2pts	19 Bottas	0pts
10 Stroll	1pt	20 Sargeant	0pts





FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 2

THE SAUDI ARABIAN GP IN 5 KEY MOMENTS

REPORT BY JAMES ROBERTS

1 Bearman earns bear hugs

The Saudi Arabian Grand Prix was held on the same weekend as the Oscars, so it was appropriate for one standout performance to be singled out for high praise. And it wasn't Max Verstappen's dominant win; instead the plaudits went to the unexpected Formula 1 debut of 18-year-old Oliver Bearman.

Charles Leclerc described his new team-mate's weekend as "incredible", team boss Frédéric Vasseur called it "mega", while Lewis Hamilton lauded F1's "future star" by describing his compatriot's performance as "phenomenal."

On the Thursday of the Jeddah event, Bearman had put his Prema-run Dallara F2 2024 on pole position for the Formula 2 race. Meanwhile Carlos Sainz, who had skipped the previous day's media duties on account of illness, continued to ail. Fast-forward 24 hours and Bearman suddenly found himself at the wheel of Sainz's SF-24 when Carlos

was rushed to hospital for an appendectomy.

This was a highly unusual set of circumstances for the Prancing Horse. For the record, the last driver to make his first F1 appearance at the wheel of a Ferrari was Arturo Merzario at the 1972 British Grand Prix. At 18 years, 10 months and one day, Bearman became the youngest-ever Ferrari driver, the youngest Brit and the third youngest starter in the history of F1. Bearman also became the 12th British driver to be handed the keys to a works Ferrari.

Bearman had just FP3 with which to reorient himself in an F1 cockpit before tackling qualifying. He could be forgiven for being off-the-pace at the fearsome Jeddah Corniche Circuit, but – with deference to the late Denny Hulme – 'The Bear' was both fast and error-free.

After missing out on Q3 by just 0.036s, Bearman lined up 11th on the grid and cautiously avoided any trouble at the start by cutting the chicane at Turn 1. Thereafter he started to learn the intricacies of modern F1 machinery by storing up battery power at the right point on the lap to execute clean overtakes on the start/finish straight.

In the final stint of the race he had a charging Lando Norris and Hamilton behind him on fresher rubber, but held station to take seventh place and scoop six world championship points. After the race Bearman was classified 10th in the F1 drivers' standings – in stark contrast to last place in the Formula 2 campaign, having had to sacrifice his weekend in that championship.

Hamilton was the first to congratulate Bearman, physically assisting the rookie from his Ferrari after a punishing, flat-out race which featured just one appearance by the Safety Car.

"Physically it was really difficult, especially at the end when I had the two guys on softs behind me. I had to basically push flat-out," said Bearman. "It was a mentally difficult race and physically I was struggling – but I think I put in a good showing for myself."

After his surgery, a clearly sore Sainz walked slowly into the paddock on race day to show his support but it was unclear who would be in the cockpit for round three in Australia. Leclerc had no doubts that Bearman would enjoy more F1 track time in the future.

The third youngest driver to start an F1 race, Bearman coped well in the SF-24 on a very tricky circuit and exceeded expectations by bringing the car home seventh



Bearman had little time to prepare himself for FP3 and qualifying after Sainz's withdrawal



PICTURES: ZAK MAUGER; SAM BLOXHAM; MARK SUTTON



The early Safety Car forced some drivers onto a different strategy to avoid losing track position while double-stacked in the pits

"He was straight on the pace in qualifying. He did a great job and missed Q3 by so little and I think today he's been incredible. Seventh in your first race in Formula 1, having done only in FP3 in a new car, is just hugely impressive," said Leclerc. "I'm sure he's extremely proud but everybody has noticed how talented he is and I guess it's just a matter of time before he comes here [full-time] in F1."

2 Success wasn't a given on alternate strategy

When the Safety Car was deployed on lap seven of the Saudi Arabian Grand Prix, four drivers opted for an alternate strategy to the rest of the field – with mixed results.

Approaching the high-speed Turn 22, Lance Stroll hit the inside wall with his front-left wheel and careered straight into the barriers on the outside of the corner. Thankfully he was unhurt, despite holding on to his Aston Martin steering wheel at the moment of impact. For three laps the Safety Car circulated and all but four drivers came into pit for hard tyres to take them to the end of the race.

The four drivers to roll the dice were Norris (who inherited the lead), Hamilton, Nico Hülkenberg and Zhou Guanyu. The latter started last on the grid after crashing his Stake in FP3. Although his mechanics rebuilt his car to get out for qualifying, he failed to cross the line in time and so failed to set a lap within 107% of pole, starting the race only

by dispensation from the stewards.

The initial expectation was for the pitstops to come around lap 20 so this teed up a potentially interesting final few laps as the later stoppers gained a tyre offset at the expense of losing track position. Another Safety Car at the 'right' moment would have made matters more intriguing – and, statistically at this high-attrition track, it was likely. More pressing for McLaren and Mercedes was the knowledge that Norris and Hamilton would have to double-stack in the pits and lose track position as a result, so the alternate strategy was rather forced on them.

Naturally the all-dominant Red Bulls soon retook their position at the head of the field – Verstappen passed Norris on lap 13 with Pérez close behind – and Leclerc followed them to secure third, 18.6s behind the leader. Leclerc had qualified second but Pérez swept by into Turn 1 at the start of the fourth tour. They remained in that order after the Safety Car pitstops, partly because Leclerc was held in his pit box as Pérez, Oscar Piastri and Fernando Alonso came by. Pérez would later get a five-second penalty for exiting his own box into Alonso's path.

Behind Hamilton in fifth, an impressive Oscar Piastri couldn't find a way past. Frustration grew as he out-braked himself at Turn 1 a number of times, then cut the corner making a pass stick and had to give the position back.

Ultimately, Norris and Hamilton required a second Safety Car or even a red flag to bring them back into contention. Neither materialised and they both finished behind George Russell and Bearman

in eighth and ninth places respectively.

It's the first time four British drivers have scored points in the same race since the 1968 French Grand Prix when John Surtees, Jackie Stewart, Vic Elford and Piers Courage last achieved that feat.

Ahead of the quartet of Brits, Fernando Alonso also "kissed" the wall, but unlike his Aston Martin team-mate did so at Turn 9 with no major consequences. He managed to keep Russell behind while not quite having the pace to overhaul the McLaren of Piastri ahead. After struggling a week earlier in Bahrain, Alonso said Jeddah had been a "small step in the right direction", adding that P5 "tasted really good".

3 Magnussen helps Hülkenberg nail a point

Nico Hülkenberg was the one driver, of the four who didn't pit behind the Safety Car, to make the alternate strategy work – but he needed the assistance of his Haas team-mate to achieve it.

On the first lap after the Safety Car, Kevin Magnussen managed to pick up a 10s time penalty after a robust defence of his 13th place from the Williams of Alex Albon. Shortly afterwards, Kevin was handed a second 10s penalty for going off-track while overtaking RB's Yuki Tsunoda.

Since Kevin's race was effectively over, the Haas pitwall – now led by former race engineer Ayao Komatsu – calculated a target lap time for ▶



FINISHING STRAIGHT

RACE DEBRIEF

F1 WORLD CHAMPIONSHIP ROUND 2

Magnussen to help allow Hülkenberg ahead build out a large enough gap so he could make his mandatory pitstop and stay in the points.

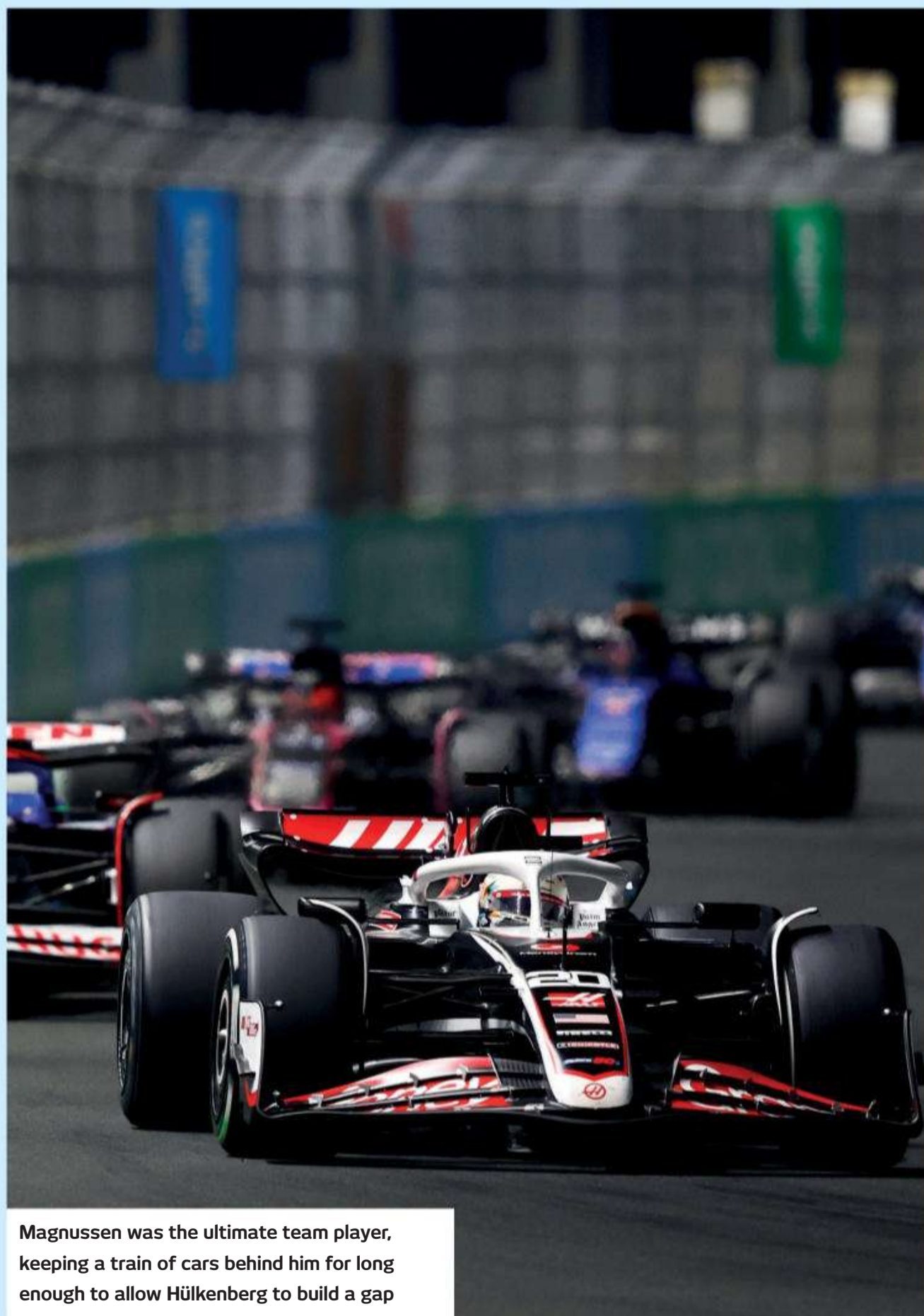
In the first sector Magnussen slowed right down, before utilising his battery to keep ahead on the straights in the remaining sectors of the lap. Those caught behind him – Tsunoda, Esteban Ocon, Albon and Logan Sargeant – grew increasingly frustrated as the race wore on.

But the strategy worked. When Hülkenberg

pitted on lap 34 he resumed in 10th to claim that all-important world championship point.

Speaking after the race, RB's sporting director Alan Permane was understandably put out by Magnussen 'parking the bus' – and by the overtake on Tsunoda which preceded it.

"That, to me, doesn't seem correct, and is the very definition of unsportsmanlike behaviour," Permane said. "I'm sure we and other teams will talk to the FIA about it for future races."



Magnussen was the ultimate team player, keeping a train of cars behind him for long enough to allow Hülkenberg to build a gap



4 Verstappen plays as Red Bull dumpster fire rages

In the record books, **Saudi Arabia** will stand as Red Bull's 115th victory – taking that team one place ahead of Williams in the all-time winners' list for constructors. Max Verstappen's 56th triumph and 100th podium in Jeddah was also Red Bull's 30th one-two finish. Sergio Pérez finished 13.643s down but that margin was exaggerated by the time penalty he received for his pitlane infraction.

It was another utterly dominant performance from the reigning world champion constructor in Jeddah. In fact Verstappen only had to use DRS to pass for position once, while passing Lando Norris to resume the lead after stopping behind the Safety Car.

Off-track, the mood within the senior echelons of the team continued to be uglier than a kebab shop fist fight. Turmoil and in-fighting demonstrably rumbled on and, with it, the daily drip of revelations and developments pointing to a vicious struggle for power over the team – and, perhaps, even the entire company.

Team boss Christian Horner even had to concede the possibility of not holding Verstappen to his contract (which runs to 2028) should he decide to leave.

In the midst of this brouhaha, perhaps the most remarkable aspect was Verstappen's busy extracurricular hours. Each night, sometimes as late as 4am, he was awake in his hotel racing online – even logging on to compete before he went to the track on race day.

"I have my own sim team, so I'm catching up with

PICTURES: ZAK MAUGER; MARK SUTTON



Another one-two for Red Bull, mirroring the Bahrain result a week earlier, but behind the scenes the team is still in turmoil

RESULTS ROUND 2

JEDDAH CORNICHE /09.03.24 / 50 LAPS



1st	Max Verstappen	Red Bull	1h20m43.273s
2nd	Sergio Pérez	Red Bull	+13.643s*
3rd	Charles Leclerc	Ferrari	+18.639s
4th	Oscar Piastri	McLaren	+32.007s
5th	Fernando Alonso	Aston Martin	+35.759s
6th	George Russell	Mercedes	+39.936s
7th	Oliver Bearman	Ferrari	+42.679s
8th	Lando Norris	McLaren	+45.708s
9th	Lewis Hamilton	Mercedes	+47.391s
10th	Nico Hülkenberg	Haas	+76.996s
11th	Alex Albon	Williams	+88.354s
12th	Kevin Magnussen	Haas	+105.737s**
13th	Esteban Ocon	Alpine	+1 lap
14th	Logan Sargeant	Williams	+1 lap
15th	Yuki Tsunoda	RB	+1 lap*
16th	Daniel Ricciardo	RB	+1 lap
17th	Valtteri Bottas	Stake	+1 lap
18th	Zhou Guanyu	Stake	+1 lap

*includes 5s penalty for an unsafe release; **includes 2x10s penalties for causing a collision and leaving the track and gaining an advantage

Retirements

Lance Stroll	Aston Martin	5 laps/crash
Pierre Gasly	Alpine	1 lap/gearbox

Fastest lap

Charles Leclerc 1m31.632s on lap 50

TYRE COMPOUNDS USED



CLIMATE	AIR TEMP	TRACK TEMP
Dry/night	25°C	29°C

DRIVERS' STANDINGS

1 Verstappen	51pts	11 Hülkenberg	1pt
2 Pérez	36pts	12 Stroll	1pt
3 Leclerc	28pts	13 Albon	0pts
4 Russell	18pts	14 Guanyu	0pts
5 Piastri	16pts	15 Magnussen	0pts
6 Sainz	15pts	16 Ricciardo	0pts
7 Alonso	12pts	17 Ocon	0pts
8 Norris	12pts	18 Tsunoda	0pts
9 Hamilton	8pts	19 Sargeant	0pts
10 Bearman	6pts	20 Bottas	0pts
		21 Gasly	0pts



them – yeah, it’s a bit of unwinding as well,” said Verstappen. “I don’t have a rig here, I’m driving on my controller so it’s just fun.

“Not having to think about Formula 1 and just be with people that are friends. Whenever I can, I do it. I woke up this morning and had an hour spare, so I logged on for a bit of fun.”

5 Norris escapes penalty for non-jump jump

When is a jump start not a jump start? From its sixth-placed grid hatching, Lando Norris’s McLaren clearly edged forwards while the red lights were still illuminated. He stopped – seemingly now out of position – and didn’t accelerate again until the five lights had been extinguished.

Starting alongside, Russell spotted it

immediately, reporting a jump start on his team radio, but in the event no penalty came Norris’s way. The stewards reviewed video which “appeared to show Car 4 moved before the start signal was given”, and, while you might think this would present a clear-cut case, it wasn’t the end of the matter.

“However,” continued the stewards’ verdict, “the FIA approved and supplied transponder fitted on the car did not indicate a jump start.”

It appears that Article 48.1 a) of the F1 Sporting Regulations states clearly that the judgement of whether there is a jump start (or not) is made in accordance with the transponder, which in the case of Norris in Jeddah “did not show a jump start”.

When quizzed by reporters after the race, Norris was careful to avoid incriminating himself. “I don’t know what happened, it happened so quickly,” he said. “I went a little bit and tried stopping. I didn’t gain anything from it.”



The cars pull away after the start, where Norris (the right of the two papaya-coloured cars) moved but wasn’t penalised for it



FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 3

AUSTRALIAN GP

22-24 March 2024

Albert Park



RACE DATA

Circuit name Albert Park
First grand prix 1996
Number of laps 58
Circuit length 3.279 miles
Race distance 190.217 miles
Lap record 1m20.235s
Sergio Pérez (2023)
F1 races held 26
Winners from pole 11
Pirelli compounds C3, C4, C5

CAR PERFORMANCE

Downforce level High
Cooling requirement Medium
Full throttle 61%
Top speed 203mph
Average speed 128mph

TIMETABLE (UK TIME)

Friday 22 March
Practice 1 01:30-02:30
Practice 2 05:00-06:00
Saturday 23 March
Practice 3 01:30-02:30
Qualifying 05:00-06:00
Sunday 24 March
Race 04.00
Live coverage Sky Sports F1
Highlights Channel 4

PICTURE: SIMON GALLOWAY ILLUSTRATION: ALAN ELDREDGE



THE MAIN EVENT

The **Australian GP** promoters have accepted the event's demotion from its traditional slot as the season's curtain-raiser (logistics dictate two rounds in the Middle East up front now), but drivers appear to have been slower to catch on. A first-day-at-school vibe prevails, as evinced by last year's event which featured three red-flag stoppages.

The circuit provides other reasons for clumsy shunts and half-taken chances. Modern F1's heavy cars are grumpy and difficult through the slow corners in the first sector, which provide the bulk of the overtaking opportunities. Only out back, as the track opens up, do the cars really start to sing. The removal of a chicane from this section has created another window for daring DRS-augmented moves.

2023 RACE RECAP

With Sergio Pérez starting from the pitlane (after a technical glitch caused him to end qualifying in a gravel trap), polesitter Max Verstappen was missing his wingman and lost out to Mercedes' George Russell at the start. Lewis Hamilton also went by but a collision between Charles Leclerc and Lance Stroll at Turn 3 prompted a Safety Car deployment.

Within three laps of Bernd Mayländer parking the Safety Car he was out again, this time to cover Alex Albon's shunt at Turn 7. The race was then red-flagged – but not before Russell had pitted for hard tyres, ceding the lead.

After the restart Verstappen sailed by Hamilton under DRS and maintained his lead through two more stoppages and restarts, the last one occurring on the final lap.

KEY CORNER: TURN 14

Coming right after the circuit's slowest corner, this turn is crucial to getting a good run down the pit straight and starting a new lap on the front foot.



THE PAST FIVE WINNERS HERE...



2023
Max
Verstappen
Red Bull



2022
Charles
Leclerc
Ferrari



2019
Valtteri
Bottas
Mercedes



2018
Sebastian
Vettel
Ferrari



2017
Sebastian
Vettel
Ferrari

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FINISHING STRAIGHT

RACE PREVIEW

F1 WORLD CHAMPIONSHIP ROUND 4

JAPANESE GP

5-7 April 2024

Suzuka



PICTURE: JAKE GRANT. ILLUSTRATION: ALAN ELDRIDGE



THE MAIN EVENT

Originally built as a test track for Honda, this figure-of-eight track makes the most of the narrow strip of land it occupies between forested hills to the west and the urban sprawl which hugs the Ise Bay shoreline to the east. It's a long schlep from Tokyo; Osaka and Kyoto are closer but this area still feels remote to the non-native. Not that this puts off tens of thousands of fans every year.

Thanks to Honda's renewed interest in F1 the circuit has a contract extension until 2029. Freight logistics have dictated a move to a spring slot in which the race serves as a stopping-off point on the way back from Australia. Will this mean more favourable weather than the often gloomy autumnal conditions which have prevailed in recent years?

2023 RACE RECAP

Max Verstappen put the constructors' championship beyond mathematical doubt for Red Bull, and all but tied up the drivers' title with another dominant win from pole in which he also bagged the fastest-lap point. Only Sergio Pérez remained in theoretical contention but he made a mess of the weekend, qualifying fifth before getting into a tangle with Lewis Hamilton's Mercedes, for which he was penalised, and then Kevin Magnussen's Haas, incurring enough damage for him to retire. He briefly un-retired to serve a time penalty for hitting Magnussen in order for it to not carry over into a grid penalty at the next race.

The McLarens of Oscar Piastri and Lando Norris qualified second and third but Norris got by his team-mate at the start and finished runner-up by 19s.

KEY CORNER: TURN 9

A deceptive right-hander about halfway round the lap, which requires delicacy in order to carry speed without spearing off track.



RACE DATA

Venue Suzuka International

Racing Course

First GP 1987**Number of laps** 53**Circuit length** 3.608 miles**Race distance** 191.053 miles**Lap record** 1m30.983s

Lewis Hamilton (2019)

F1 races held 33**Winners from pole** 17**Pirelli compounds** TBA

CAR PERFORMANCE

Downforce level High**Cooling requirement** Medium**Full throttle** 66%**Top speed** 204mph**Average speed** 141mph

TIMETABLE (UK TIME)

Friday 5 April**Practice 1** 03:30-04:30**Practice 2** 07:00-08:00**Saturday** 6 April**Practice 3** 03:30-04:30**Qualifying** 07:00-08:00**Sunday** 7 April**Race** 06:00**Live coverage** Sky Sports F1**Highlights** Channel 4

THE PAST FIVE WINNERS HERE



2023

Max
Verstappen
Red Bull

2022

Max
Verstappen
Red Bull

2019

Valtteri
Bottas
Mercedes

2018

Lewis
Hamilton
Mercedes

2017

Lewis
Hamilton
Mercedes

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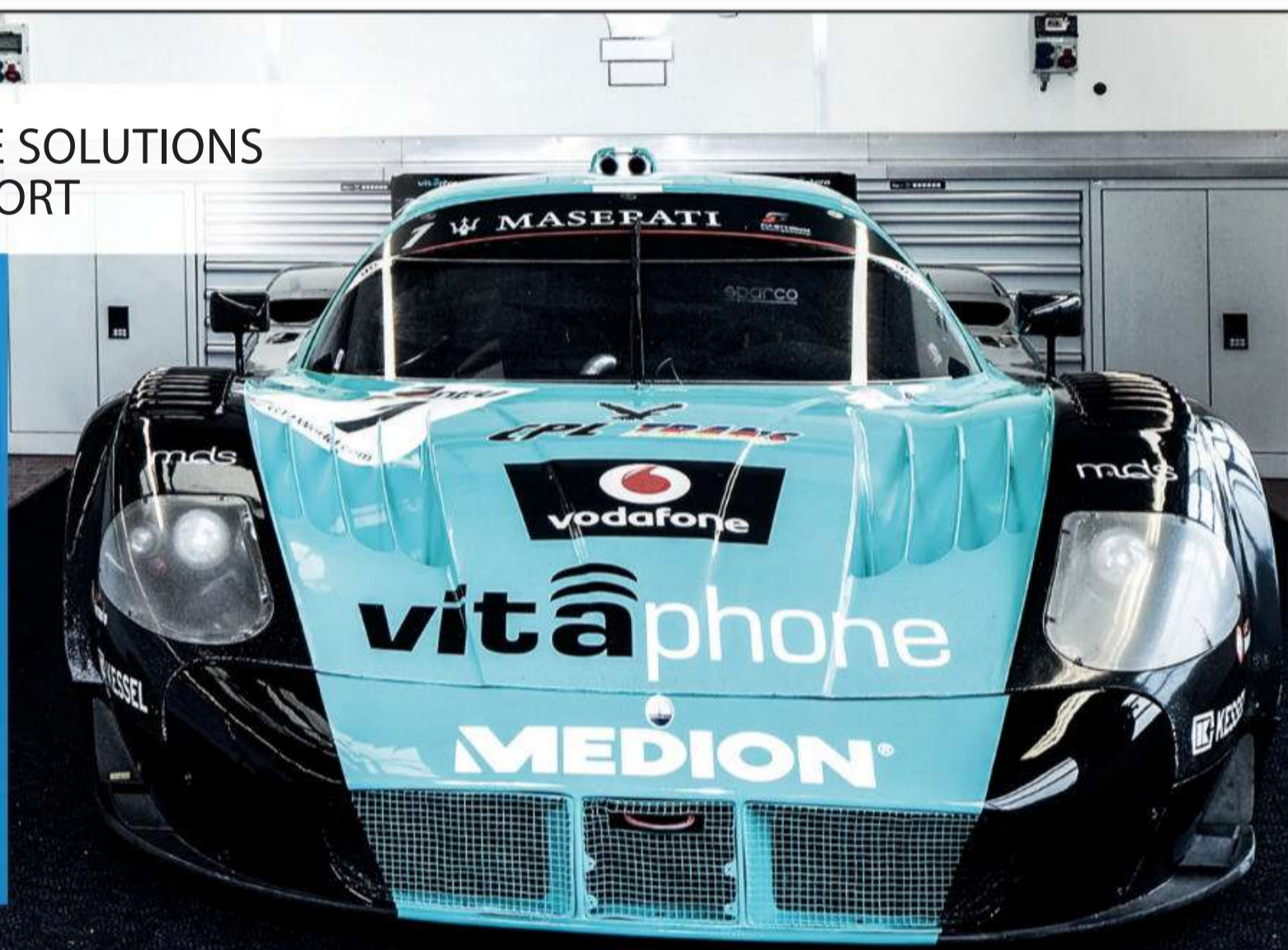
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Authors Joshua Robinson, Jonathan Clegg

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Robinson and Clegg have general sporting briefs at the *Wall Street*

Journal and offer a different take on the F1 world. This book aims to do for F1 what the authors' *The Club* did for premier league football: explain how a popular but not necessarily wealthy sport became a global commercial powerhouse. Spoilers: Bernie Ecclestone features heavily, but not always in the manner you might think.

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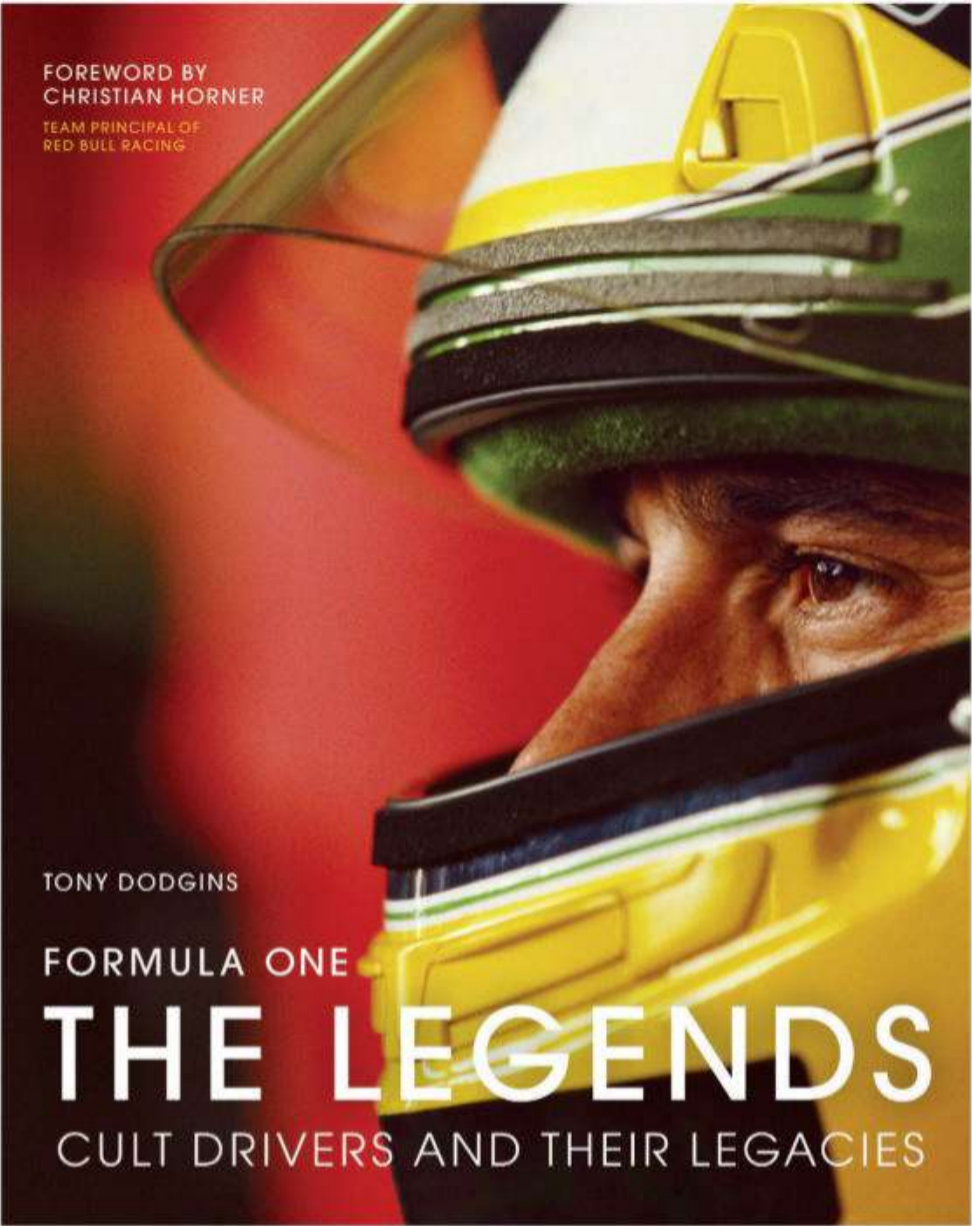
Price £1,699.99

orientwatch.co.uk

At the upper end of Japanese watchmaker Orient's range lies the Mechanical Moon Phase collection, launched in 2017 and now updated with a next-generation model. It features a distinctive and unusual graphic treatment with a flowing water motif on the dial in a stamped design whose curves expand as they meet the Roman numeral indices. Intended to evoke the effect of the moon illuminating a flowing river – with glittering stars inset

in the hands – the dial also features a semi-skeleton aperture, a power reserve indicator, and a moon phase with date display.

Inside, the in-house caliber F7M62 movement – a development of the 46-F7 series in use since 1971 – offers a 50-hour power reserve. As well as the aperture on the front, the workings are visible through the sapphire crystal case back. A cordovan leather strap completes the classically elegant effect.



FORMULA ONE THE LEGENDS

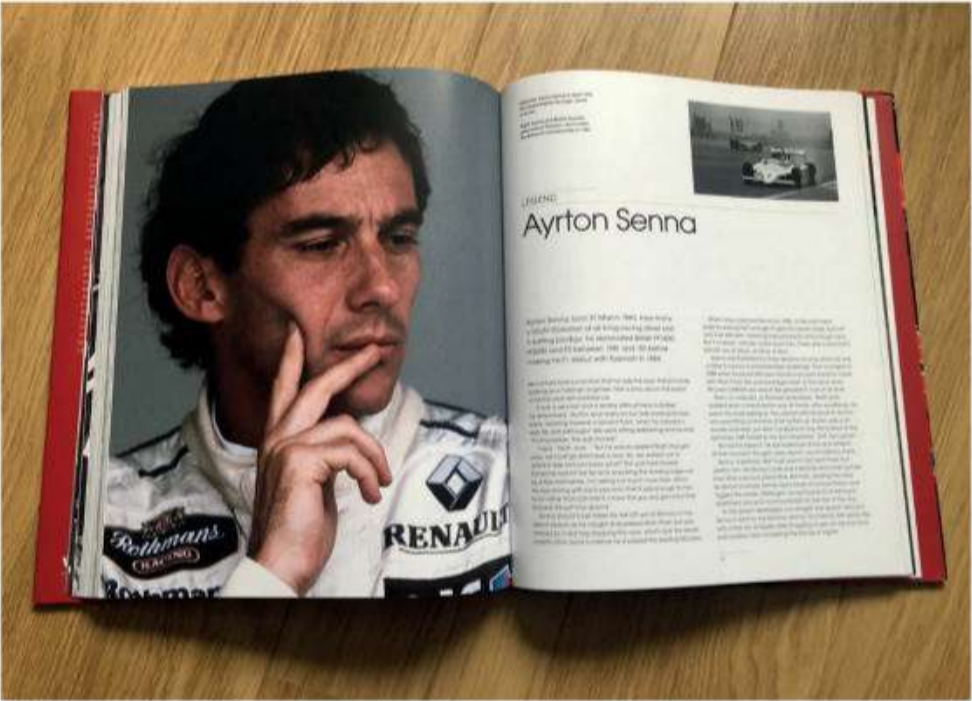
Author Tony Dodgins

Price £35

quarto.com

While the visceral thrill of watching fast, roaring (well, in the past perhaps), high-tech racing cars encapsulates a large part of motor Formula 1's appeal, personality also accounts for much of its appeal. Indeed, much of the on-track drama springs from the characters involved and their differing styles. This new book explores the triumphs and tragedies of F1's biggest stars.

Most if not all were champions – it would be a rum tome indeed if it didn't feature Stirling Moss – and the book carefully profiles each individual. Some may quibble the inclusion of Nico Rosberg but the book makes a compelling case. Author Tony Dodgins is an industry veteran and, indeed, a former *GP Racing* staffer, still active in F1 as the 'spotter' for Channel 4's commentary team.



ENZO FERRARI

Author Luca Dal Monte

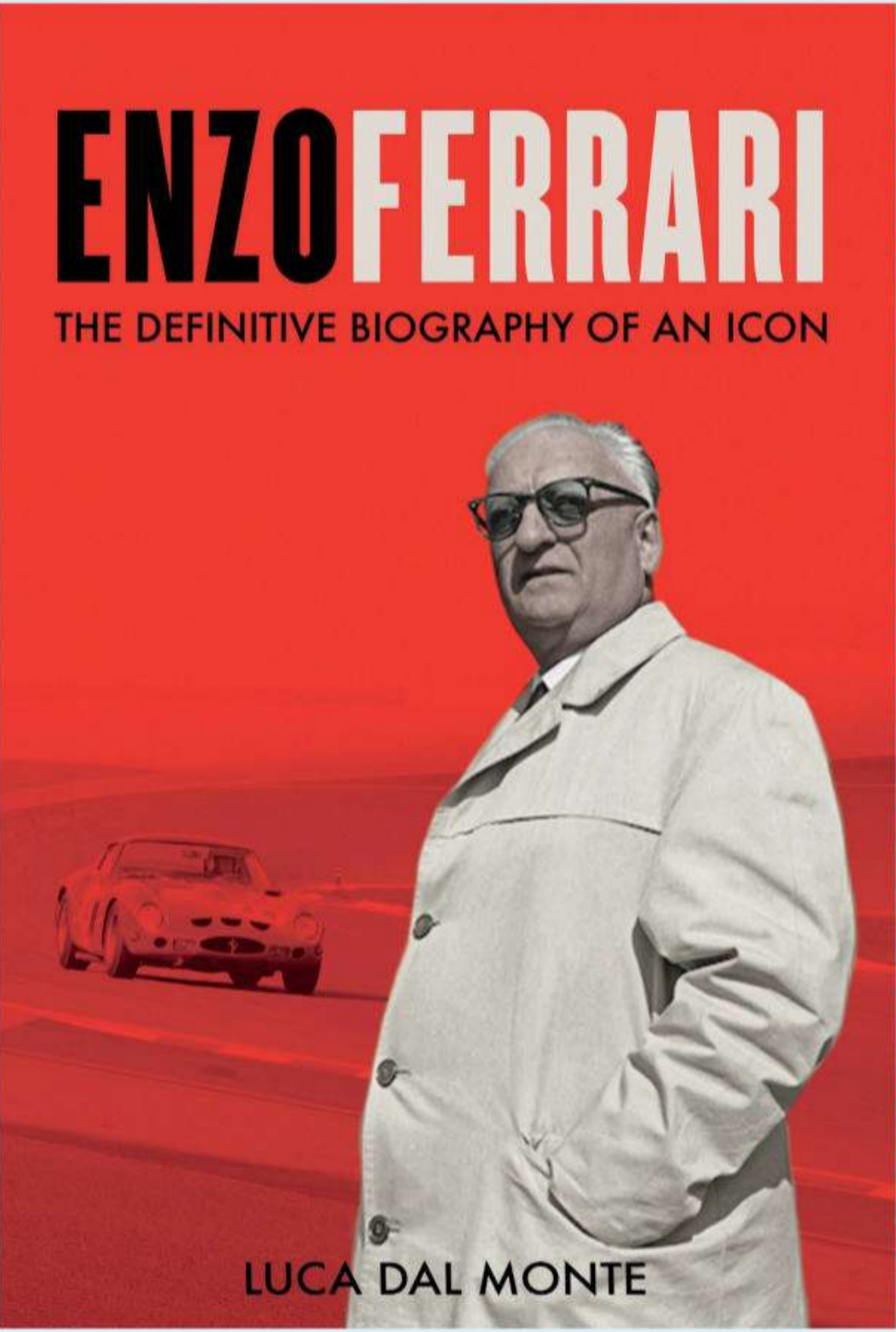
Price £25

octopusbooks.co.uk

Originally published in various limited-edition formats by Giorgio Nada and David Bull in 2018, Luca Dal Monte's biography of Enzo Ferrari proved itself definitive by dint of copious original research by the author (it took eight years to write). It has even spawned a documentary series scheduled to begin shortly on Apple TV+.

Dal Monte, an industry veteran who headed Ferrari's North American press office in the early 2000s, knows

the company inside out and was responsible for translating the book into English. Much of the scholarship derives from original company documentation going back to Enzo's time managing Alfa Romeo's grand prix racing team. At 528 pages this is a slimmed-down version of the original 954-page monster (the Italian edition ran to over 1000 pages), but is nevertheless fascinating and full of nuances which may surprise even learned readers.





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THE FINAL LAP

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IMAGES

MERC STANDS TO GAIN FROM RED BULL PAIN

Toto Wolff looks increasingly likely to be the only person to emerge from the civil war at the top of Red Bull smelling anything like roses. And he'd be more than a touch fortunate to do so.

Although the energy drinks company's independent investigation into allegations made against Christian Horner by a female employee found no wrongdoing, Horner's reputation has been damaged irreparably. Whether he harboured ambitions of taking the top job in Formula 1 or not, it's now tough to imagine series stakeholders ever nominating him as a replacement for Stefano Domenicali. Over in the court of social media, it won't matter if the rumours are eventually proved wrong. The internet has already decided it's the Verstappen camp guilty of briefing the press and leaking sensitive material to FIA and FOM bosses. No one comes away looking good.

It's abundantly clear that this saga doesn't end

post, it's clear the relationship between that family and the team principal is lying in tatters. One must surely go.

Verstappen Jr and Adrian Newey are among top Red Bull staffers said to have a 'Horner clause' in their contracts. In other words, if he goes, they can exercise a lever to follow out the door. If it's true that Red Bull's

nascent engine programme has fallen well behind, perhaps the time is coming for Max Verstappen to fly the nest if he wants to keep topping up the trophy count. With Horner gone, his representatives can engineer a departure a bit more easily.

Since Ferrari has pledged its allegiance to Charles Leclerc and now Lewis Hamilton, the plausible destination for Verstappen for 2025 and beyond is Mercedes. That was unthinkable three years ago as one of the most bitterly contested seasons in grand prix history played out. Now, though, it's a logical outcome of the Red Bull instability.

Wolff had to let Verstappen slip through his fingers the best part

of a decade ago. With Nico Rosberg and Hamilton at the team, he couldn't offer the rising star a plausible route to the top when Red Bull could. Toto now risks doing similar with Mercedes protégé Andrea Kimi Antonelli, who is the other leading contender to directly replace Hamilton should his FIA F2 effort with Prema Racing recover from the junior team's dismal showing in the Bahrain opener.

An outcome where Mercedes signs Verstappen to partner George Russell, as Antonelli adjusts to life in F1 with a couple of years at Williams but remains on the books, would be nothing short of a masterstroke if Wolff could pull it off. Especially as, in turn, it would massively weaken key rival Red Bull. But after two years of ground-effect misery, and an unremarkable start to 2024, it almost wouldn't be a meritocratic outcome for the Three-Pointed Star.

Perhaps Brackley and Brixworth's preparation for 2026 will be enough for it to topple Red Bull on track fair and square. At this stage, that remains a calculated gamble if it's even a part of Verstappen's thought process. Based on current form, though, you couldn't say Mercedes landing him would be wholly deserved. So, whether it ends with the fall of Horner or Verstappen packing his bags, Red Bull's current self-destruction presents Wolff with a blinding opportunity.



There were post-race celebrations in Bahrain after Max's win but there is turmoil at Red Bull and this could be to Merc's advantage

without Red Bull losing at least one of its most valuable assets: either the boss who built the team into a serial title winner and whom sponsors seem to love, or the most prodigious driving talent on the grid. When Jos Verstappen is declaring that Red Bull will "explode" if Horner remains in

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